LPDES PERMIT NO. LA0003336, AI No. 3271

LPDES FACT SHEET and RATIONALE
FOR THE DRAFT LOUISIANA POLLUTANT DISCHARGE ELIMINATION SYSTEM (LPDES) PERMIT TO DISCHARGE TO WATERS OF LOUISIANA

I. **Company/Facility Name:** Sasol North America, Inc.
Lake Charles Chemical Complex
2201 Old Spanish Trail
Westlake, LA 70669

II. **Issuing Office:** Louisiana Department of Environmental Quality (LDEQ)
Office of Environmental Services
Post Office Box 4313
Baton Rouge, Louisiana 70821-4313

III. **Prepared By:** Jenniffer Sheppard
Industrial Permits Section
Water Permits Division
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Date Prepared: December 9, 2008

IV. **Permit Action/Status:**

A. Reason For Permit Action:

Proposed reissuance of an existing Louisiana Pollutant Discharge Elimination System (LPDES) permit for a 5-year term following regulations promulgated at LAC 33:IX.2711/40 CFR 122.46.

* In order to ease the transition from NPDES to LPDES permits, dual regulatory references are provided where applicable. The LAC references are the legal references while the 40 CFR references are presented for informational purposes only. In most cases, LAC language is based on and is identical to the 40 CFR language. 40 CFR Parts 401, 405-415, and 417-471 have been adopted by reference at LAC 33:IX.4903 and will not have dual references. In addition, state standards (LAC 33:IX Chapter 11) will not have dual references.

LAC 33:IX Citations: Unless otherwise stated, citations to LAC 33:IX refer to promulgated regulations listed at Louisiana Administrative Code, Title 33, Part IX.

40 CFR Citations: Unless otherwise stated, citations to 40 CFR refer to promulgated regulations listed at Title 40, Code of Federal Regulations in accordance with the dates specified at LAC 33:IX.2301, 4901, and 4903.

B. NPDES permit - NPDES permit effective date: N/A
NPDES permit expiration date: N/A
EPA has not retained enforcement authority.

C. LPDES permit - Individual Permit Coverage - LA0003336
Issued by EPA Region VI as an NPDES/LPDES permit. Please note that "LPDES" will be used for all Fact Sheet references.

LPDES permit effective date: May 15, 2002.
LPDES permit expiration date: May 14, 2007.

LPDES minor modification #1 effective date: October 1, 2003.

LPDES minor modification #2 effective date: July 1, 2004.

General Permit Coverage - LAR05M448
LPDES permit effective date: May 23, 2006
LPDES permit expiration date: April 30, 2011

D. Application received on November 15, 2006. Updated information dated December 19, 2006, January 17, 2007, November 8, 2007, and via e-mail on March 27, 2007, May 3, 2007, and February 6, 2008.

V. Facility Information:

A. Location - 2201 Old Spanish Trail in Westlake

B. Applicant Activity -

According to the application, Sasol North America, Inc., Lake Charles Chemical Complex, is a multi-product organic chemical manufacturing plant which handles wastewater from six distinct chemical processing units (ethylene, alcohol, alumina, normal paraffins, ethoxylates, and linear alkyl benzene) and the Georgia Gulf Lake Charles Vinyl Chloride Monomer plant located on property contiguous to the Lake Charles Chemical Complex.

The following units are part of the process descriptions:

1. Ethylene Unit (ETH) - consists of all equipment and systems used to handle, transfer, and produce ethylene. In addition to ethylene, this unit also produces the following co-products: heavy aromatic distillate (HAD), light aromatic concentrate (LAC), methane off-gas, hydrogen off-gas, mixed C3s (propane and propylene), mixed C4s (butadiene concentrate), and weak caustic solution.

2. Steam Plant (STM) - consists of the equipment and systems used to generate and deliver steam to process areas located throughout Sasol, Conoco Phillips Refinery, and Georgia Gulf VCM Plant.

3. Ethoxylate Unit (ETO) - this unit contains two process units - the Vista Unit and the Buss Unit. These two processes operate in parallel, use the same feedstocks, and produce the same products. In both units, ethylene oxide (EO) can be reacted with various feedstocks to produce ethoxylates. The feedstocks can also be blended into the ethoxylated products to produce blended products.

4. Normal Paraffins Unit (NPU) - The primary products are normal paraffins (n-paraffins), and the co-products are low poly-nuclear aromatic (LPS) solvents and molex raffinate (MR) solvent.

5. Linear Alkyl Benzene Unit (LAB) - consists of all equipment and systems used to handle, transfer, and produce LAB products (including speciality alkylates) and heavy paraffins.

6. Alcohol Unit (ALC) - manufactures alumina slurry and C2 through C20+ primary alcohols. Production takes place in a multi-staged process where an intermediate, aluminum alkoxide, is made for the use in the production of alcohol and alumina.

7. Alumina Unit (ALU) - consists of equipment and systems to produce hydrated alumina ($Al_2O_3H_2O$) and calcined alumina (Al_2O_3) product from alumina slurry produced by the ALC Unit or other off-site source.

8. Georgia Gulf Lake Charles, LLC Vinyl Chloride Monomer (GGLLC VCM) Plant - The primary product of the unit is vinyl chloride monomer (VCM). VCM is produced by thermally cracking the intermediate ethylene dichloride (EDC) (1,2-dichloroethane).

   Vinyl Chloride Monomer (VCM) Unit is owned and operated by Georgia Gulf Corporation Lake Charles, LLC. However, as per the Supply and Service Agreement executed by Sasol and Georgia Gulf Corporation, effective on November 13, 1999, the VCM plant process water is sent to Sasol's Activated Sludge Unit (ASU) for treatment and discharge through Outfall 001, B01, or C01). The VCM Unit process water, which consists of process water, stormwater, and groundwater from the facility's groundwater remediation program, all of which are steam stripped for recovery of organics is sent to Sasol's Activated Sludge Unit (ASU) and discharged at Outfall 001, B01 or C01).

The VCM Unit cooling tower blowdown is also sent to Sasol's effluent tank prior to Outfall 001, B01, or C01.

9. Activated Sludge Unit (ASU) - consists of all equipment and systems used to handle, transfer, store, and treat wastewater generated throughout the Sasol Lake Charles Chemical Complex and the GGLLC VCM Plant as well as remediation groundwater.

Stormwater is covered under the Multi-Sector General Permit (MSGP), LAR05M448, reauthorization effective on May 23, 2006.

C. Technology Basis - (40 CFR Chapter 1, Subchapter N/Parts 401, 405-415, and 417-471 have been adopted by reference at LAC 33:IX.4903)

Guideline	Reference
Organic Chemicals, Plastics, and Synthetic Fibers Process Flow - 1.317312	40 CFR 414 Subparts F, G, H, and I.

Other sources of technology based limits:
Best Professional Judgment

D. Fee Rate -
1. Fee Rating Facility Type: major
2. Complexity Type: VI
3. Wastewater Type: II
4. SIC code: 2869

E. Continuous Facility Effluent Flow - 2.549232 MGD.

VI. Receiving Waters: Calcasieu River - Subsegment 030301 (Outfall 001 and/or C01), and Bayou Verdine at Subsegment 030306 (Emergency Outfall B01 and Outfalls 002, 004, 008, 018, and 030).

Calcasieu River - Subsegment 030301 (Outfalls 001 and C01)
1. TSS (15%), mg/L: 10.5
2. Average Hardness, mg/L $CaCO_3$: 977.65
3. Critical Flow, cfs: 1208
4. Mixing Zone Fraction: 0.3333
5. Harmonic Mean Flow, cfs: 3624
6. River Basin: , Segment No. 030301
7. Designated Uses:
   The designated uses are primary contact recreation, secondary contact recreation, and fish and wildlife propagation.

Bayou Verdine at Subsegment 030306 (Emergency Outfall B01)

1. TSS (15%), mg/L: 12.1
2. Average Hardness, mg/L $CaCO_3$: 1601.3
3. Critical Flow, cfs: 4.14
4. Mixing Zone Fraction: 1
5. Harmonic Mean Flow, cfs: 12.42
6. River Basin: , Segment No. 030306
7. Designated Uses:

   The designated uses are primary contact recreation, secondary contact recreation, and fish and wildlife propagation.

Information based on the following: Water Quality Management Plan; LAC 33:IX Chapter 11;/Recommendation(s) from the Engineering Section. This data was presented in a memorandum from Will Barlett to Jenniffer Sheppard, dated May 4, 2007 with additional information provided via e-mail on May 8, 2007 (See Appendix C).

VII. Outfall Information:

Outfall 001

A. Type of wastewater - the continuous discharge of process wastewater, process area stormwater, and miscellaneous utility wastewaters from the Normal Paraffin Unit (NPU), Ethoxylate Unit (ETO), Alcohol Unit (ALC), Alumina Unit (ALU), Linear Alkyl Benzene Unit (LAB), Ethylene Unit (ETH), Steam Plant (STM), Georgia Gulf Lake Charles Vinyl Chloride Monomer (GCLC VCM) Plant, and Activated Sludge Unit (ASU); sanitary wastewater; groundwater; holding ponds/basins stormwater; zeolite regeneration wastewater; boiler blowdown; sulfide caustic; lime settler wastewater; caustic wash quench settler blowdown; benzene contaminated water and steam condensate; and alcohol quench wastewater.

B. Location - at the outlet of the treatment system on the Lake Charles Chemical Complex property prior to pumping into the discharge line to the Calcasieu River, at Latitude 30°13'02", Longitude 93°15'16".

C. Treatment - treatment of process wastewaters listed below by process unit and/or specific areas consists of:

ETH - Process wastewaters are sent for storage/phase separation and to the activated sludge unit (ASU) for further treatment.

ETH - Process wastewaters from sulfide caustic are sent for storage/phase separation, wet air oxidation (WAO), and to the ASU for further treatment.

ETH - Process wastewaters from caustic wash water, and as necessary, benzene contaminated streams are sent for storage/phase separation, steam

stripping, and to the ASU for further treatment.

ETH - Process blowdowns are sent for pH adjustment and to the ASU for further treatment prior to discharge to surface waters. These discharges can be alternatively routed to the ASU before or after pH adjustment.

STM - Zeolite regeneration effluent is sent for pH adjustment and the ASU for further treatment (can be alternatively routed to ASU before or after pH adjustment).

ETO - Process wastewaters are sent to the corrugated plate interceptor (CPI) separator, dissolved air flotation (DAF), and to the ASU for further treatment.

NPU - Process wastewaters are sent to the american petroleum institute (API) separator, CPI separator, DAF, and to the ASU for further treatment.

LAB - Process wastewaters from the LAB aromatic sewer are sent for storage/phase separation, steam stripping, and to the ASU for further treatment.

LAB - Process wastewater from LAB oily water is sent to the CPI separator, storage/phase separation, and to the ASU for further treatment.

LAB - Process wastewaters that are caustic and/or streams contaminated with benzene are sent for storage/phase separation, steam stripping, and to the ASU for further treatment.

LAB - Process wastewaters from the LAB acid sewer are sent for pH adjustment, CPI separator, storage/phase separation, and to the ASU for further treatment.

LAB - Process wastewaters from the LAB process runoff are sent for storage/phase separation and to the ASU for further treatment.

ALC - Process wastewaters from the Alcohol Quench Section are sent through sand filter settling basins, the CPI separator, DAF, and to the ASU for further treatment.

ALC and ALU - Process wastewaters are sent to the CPI separator, DAF, and to the ASU for further treatment.

GGCLLC VCM - Process wastewaters from groundwater to VCM are sent for storage and steam stripping, then to the ASU for further treatment.

GGCLLC VCM - Process wastewaters from the VCM are sent to the ASU for further treatment.

ASU - Pretreated wastewater from GGCLLC VCM Unit, tanks T7-914/915, the Alcohol DAF Unit, and segregated

groundwater from the facility's groundwater remediation system are pumped through separate lines to the ASU. Treatment through the ASU includes equalization, pH adjustment, activated sludge, and flocculation prior to discharge to surface waters. Settled sludge goes through thickening and a sludge dewatering press.

Lime Settler - Process wastewaters are sent through sand filter settling basins, the CPI separator, DAF, and to the ASU for further treatment.

Miscellaneous - Miscellaneous process wastewaters are sent to the DAF Unit and to the ASU for further treatment.

Treatment of process area stormwater listed below by process unit and/or specific areas consists of:

ETH - Process area stormwater is sent to the ASU for treatment prior to discharge to surface waters.

ETO - The first inch of process area stormwater is treated by DAF, and sent to the ASU for further treatment, or as an alternative, post-first flush stormwater runoff (stormwater after one inch) may be discharged directly via Outfall 002.

NPU - Process area stormwater is sent to the ASU.

LAB - Process area stormwater is sent for storage/phase separation and to the ASU for further treatment. As an alternative, post-first flush stormwater runoff (stormwater after one inch) may be discharged directly via Outfall 030.

LAB - Process area stormwater from the LAB oily water is sent to the CPI separator and to the ASU for further treatment.

ALC and ALU - Process area stormwater is sent to the ASU or as an alternative, post-first flush stormwater runoff (stormwater after one inch) may be discharged directly via Outfall 002.

GGCLLC VCM - Process area stormwater from the VCM is sent to the ASU for further treatment.

ASU - Process area stormwater from the ASU area is sent to the ASU for treatment.

Holding Pond - Process area stormwater rainfall into the holding pond/basins is sent for storage, to the DAF unit, and to the ASU for further treatment.

Miscellaneous - Miscellaneous process area stormwater is sent to the DAF Unit and to the ASU for further treatment.

Treatment of utility wastewater listed below by process unit and/or specific areas consists of:

ETH -	Treatment in the ASU prior to discharge. However, discharges of cooling tower blowdown from this unit do not receive any treatment prior to discharging to surface waters.
ETO -	Miscellaneous utility, including discharges of cooling tower blowdown do not receive any treatment prior to discharging to surface waters.
NPU -	Treatment in the ASU prior to discharging to surface waters.
LAB -	Discharges of cooling tower blowdown do not receive any treatment prior to discharging to surface waters.
ALC and ALU -	Treatment in the ASU prior to discharge. However, discharges of cooling tower blowdown from these units do not receive any treatment prior to discharging to surface waters.
GGCLLC VCM -	Discharges of VCM cooling tower blowdown do not receive any treatment prior to discharging to surface waters.
ASU -	Treatment in the ASU prior to discharging to surface waters.
Lime Settler -	Utility wastewaters are sent to the DAF and to the ASU for further treatment.
Miscellaneous -	Miscellaneous utility wastewaters are sent to the DAF Unit and to the ASU for further treatment.

Treatment of sanitary wastewater listed below by process unit and/or specific areas consists of:

ETH/STM/VCM-	Sanitary wastewaters from these areas are sent to a septic tank, S.F. settling basins, the CPI separator, DAF, and to the ASU for further treatment prior to discharging to surface waters.
LAB -	Sanitary wastewaters are sent to a septic tank, then to the ASU for further treatment prior to discharging to surface waters.
GGCLLC VCM -	Sanitary wastewater from the VCM area is sent to the ASU for treatment prior to discharge to surface waters.
ASU -	Sanitary wastewater from the new I & E Building area is sent to the ASU for treatment prior to discharge to surface waters.
East Side -	East side sanitary discharges are sent to a septic tank, the ASU, CPI, and DAF Units for treatment.

D. Flow - Continuous Flow 2.549232 MGD.

Process Wastewater & Stormwater*	1.317312 MGD
Utility Wastewater*	1.212480 MGD
Sanitary Wastewater*	0.019440 MGD

* Specific components of the waste streams are defined at Appendix A-1.

E. Receiving waters - Calcasieu River.

F. Basin and segment - Calcasieu River Basin, Segment 030301.

Emergency Outfall B01

A. Type of wastewater - the continuous discharge of process wastewater, process area stormwater, and miscellaneous utility wastewaters from the Normal Paraffin Unit (NPU), Ethoxylate Unit (ETO), Alcohol Unit (ALC), Alumina Unit (ALU), Linear Alkyl Benzene Unit (LAB), Ethylene Unit (ETH), Steam Plant (STM), Georgia Gulf Lake Charles Vinyl Chloride Monomer (GCLC VCM) Plant, and Activated Sludge Unit (ASU); sanitary wastewater; groundwater; holding ponds/basins stormwater; zeolite regeneration wastewater; boiler blowdown; sulfide caustic; lime settler wastewater; caustic wash quench settler blowdown; benzene contaminated water and steam condensate; and alcohol quench wastewater.

* This outfall was previously established by EPA Region VI as an alternate discharge location for Outfall 001 for use on an emergency basis (during pump failure or maintenance of the discharge line). This outfall will **not** discharge at the same time as Outfall 001 and/or be used on a permanent basis without receiving a permit modification to include additional requirements.

Please note that Outfall B01 is identical to Outfall 001 for description, treatment of various wastewaters, and flow. This outfall only differs in the location of the discharge and receiving stream.

B. Location - at the point of discharge from the treatment system, prior to discharging into Bayou Verdine at Latitude 30°14'45", Longitude 93°16'45".

C. Treatment - same as Outfall 001.

D. Flow - Continuous Flow 2.549232 MGD.

Process Wastewater & Stormwater*	1.317312 MGD
Utility Wastewater*	1.212480 MGD
Sanitary Wastewater*	0.019440 MGD

* Specific components of the waste streams are defined at Appendix A-1.

E. Receiving waters - Bayou Verdine.

F. Basin and segment - Calcasieu River Basin, Segment 030306.

Emergency Outfall C01

A. Type of wastewater - the continuous discharge of process wastewater, process area stormwater, and miscellaneous utility wastewaters from the Normal Paraffin Unit (NPU), Ethoxylate Unit (ETO), Alcohol Unit (ALC), Alumina Unit (ALU), Linear Alkyl Benzene Unit (LAB), Ethylene Unit (ETH), Steam Plant (STM), Georgia Gulf Lake Charles Vinyl Chloride Monomer (GCLC VCM) Plant, and Activated Sludge Unit (ASU); sanitary wastewater; groundwater; holding ponds/basins stormwater; zeolite regeneration wastewater; boiler blowdown; sulfide caustic; lime settler wastewater; caustic wash quench settler blowdown; benzene contaminated water and steam condensate; and alcohol quench wastewater.

* This outfall was previously established by EPA Region VI as an alternate discharge location for Outfall 001 for use on an emergency basis (in the event that the diffuser is taken out of service or during the maintenance of the diffuser). This outfall will **not** discharge at the same time as Outfall 001 and/or be used on a permanent basis without receiving a permit modification to include additional requirements.

Please note that Outfall C01 is identical to Outfall 001 for description, treatment of various wastewaters, flow, and receiving stream. This outfall only differs in the actual discharge location into the receiving stream.

B. Location - at the point of discharge from the treatment system, prior to discharging into the Calcasieu River at Latitude 30°13'02", Longitude 93°15'16".

C. Treatment - same as Outfall 001.

D. Flow -Continuous Flow 2.549232 MGD.

Process Wastewater & Stormwater*	1.317312 MGD
Utility Wastewater*	1.212480 MGD
Sanitary Wastewater*	0.019440 MGD

* Specific components of the waste streams are defined at Appendix A-1.

E. Receiving waters - Calcasieu River.

F. Basin and segment - Calcasieu River Basin, Segment 030301.

Outfall 002

A. Type of wastewater - the intermittent discharge of post-first flush stormwater runoff (first inch of stormwater is diverted to a holding pond and then to treatment for discharge through Outfall 001) from the Ethoxylate Unit (ETO), Alcohol Unit (ALC), and Ethylene Unit (ETH) area(s).

B. Location - at the point prior to discharge into the West Drainage Ditch and commingling with other waters, at Latitude 30°14'79", Longitude 93°16'55".

C. Treatment - None.

First flush (first inch of rainfall) is sent to Outfall 001 for treatment.

D. Flow - Intermittent.

E. Receiving waters - West Ditch, thence to Bayou Verdine.

F. Basin and segment - Calcasieu River Basin, Segment 030306.

Outfall 004

A. Type of wastewater - the intermittent discharge of low contamination potential stormwater runoff from the Ethylene Unit (ETH) and Steam Plant (STM), steam trap condensate, raw water, and firewater from winterization.

B. Location - at the point prior to discharge into the West Drainage Ditch and commingling with other waters, at Latitude 30°15'00", Longitude 93°16'84".

C. Treatment - None.

D. Flow - Intermittent.

E. Receiving waters - West Ditch, thence to Bayou Verdine.

F. Basin and segment - Calcasieu River Basin, Segment 030306.

Outfall 008

A. Type of wastewater - the intermittent discharge of low contamination potential stormwater runoff from the paved areas for the secondary treatment system.

B. Location - at the point prior to discharge into the West Drainage Ditch and commingling with other waters, at Latitude 30°14'86", Longitude 93°16'88".

C. Treatment - None.

D. Flow - Intermittent.

E. Receiving waters - West Ditch, thence to Bayou Verdine.

F. Basin and segment - Calcasieu River Basin, Segment 030306.

Outfall 018

A. Type of wastewater - the intermittent discharge of low contamination potential stormwater runoff from the Alcohol Unit (ALC) diked north tank farms.

B. Location - at the point prior to discharge into the West Drainage Ditch and commingling with other waters, at Latitude 30°15'12", Longitude 93°16'74".

C. Treatment - None.

D. Flow - Intermittent.

E. Receiving waters - West Ditch, thence to Bayou Verdine.

F. Basin and segment - Calcasieu River Basin, Segment 030306.

Outfall 030

A. Type of wastewater - the intermittent discharge of post-first flush stormwater runoff (first inch of stormwater is diverted for treatment and discharge through Outfall 001) from the diked areas around T-802, the Linear Alkyl Benzene Unit (LAB), as well as stormwater stored in T-802.

B. Location - at the point prior to discharge into the West Drainage Ditch and commingling with other waters, at Latitude 30°15'00", Longitude 93°16'45".

C. Treatment - None.

First flush (first inch of rainfall) is sent to Outfall 001 for treatment.

D. Flow - Intermittent.

E. Receiving waters - West Ditch, thence to Bayou Verdine.

F. Basin and segment - Calcasieu River Basin, Segment 030306.

VIII. Proposed Permit Limits:

The specific effluent limitations and/or conditions will be found in the draft permit. Development and calculation of permit limits are detailed in the Permit Limit Rationale section below.

Summary of Proposed Changes From the Current LPDES Permit:

A. Outfalls 001, B01, and/or C01 - Permit limitations have increased due to an increase in process flow from 1.044 MGD to 1.317312 MGD (total outfall flow increased from 2.148 MGD to 2.549232 MGD). These limitations were calculated in accordance with the OCPSF Guidelines at 40 CFR 414 (Subparts F, G, H, and I), with the exception of water quality limited parameters. Limitations at these outfalls also differ due to a change in the breakdown of percent production by subpart. The current LPDES permit effective on May 15, 2002 was based on a production of 62.9% for Subpart F, 35.7% for Subpart G, and 1.4% for Subpart H. The values submitted in a November 8, 2007 LPDES application addendum were 43.7% for Subpart F, 52.4% for Subpart G, and 3.9% for Subpart H. Therefore, the limitations

established are based on the updated flow rate and the revised subpart percentages presented in the November 2007 submittal.

B. Outfalls 001, B01, and/or C01 - Sasol has requested a monitoring frequency reduction for BOD_5, COD, and TSS from 2/week to 1/month in accordance with the USEPA Memorandum "Interim Guidance for Performance-Based Reductions of NPDES Permit Monitoring Frequencies." This request has been partially granted. Although Sasol does qualify for the requested reductions for BOD_5 and COD, the Department has determined that 1/month sampling is not an adequate frequency for conventional and non-conventional parameters for major facilities. Therefore, the frequency for BOD_5 and COD has been reduced from 2/week to 1/week. No reductions were granted for TSS due to an excursion reported in March 2007.

C. Outfalls 001, B01, and/or C01 - Sasol has requested a monitoring frequency reduction (See December 19, 2006 application addendum for percent ratio of long-term average to permit limitation for each parameter - calculations were based on a total of 104 samples) for Ammonia (as N), 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, 1,2-Dichloroethane, Toluene, 1,1-Dichloroethane, Benzene, Carbon Tetrachloride, Chloroethane, Chlorobenzene, Chloroform, Methyl Chloride, Ethylbenzene, Methylene Chloride, and Vinyl Chloride of 1/week to 1/ 2 months in accordance with the USEPA Memorandum "Interim Guidance for Performance-Based Reductions of NPDES Permit Monitoring Frequencies." This request has been granted.

D. Outfalls 001, B01, and/or C01 - A Total Maximum Daily Load (TMDL) has been developed for the Upper Calcasieu Estuary (subsegment 030301) and also Bayou Verdine (subsegment 030306), which recommends that all major and significant minor dischargers test effluents for chronic toxicity at least quarterly to demonstrate that unmonitored pollutants or the combination of monitored and/or unmonitored pollutants are not causing instream toxicity. Therefore, whole effluent toxicity testing requirements have changed from acute to chronic per the applicable TMDLs. This recommendation is in accordance with the LDEQ/OES Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards, Water Quality Management Plan, Volume 3, Version 6 (April 16, 2008), and the Best Professional Judgment (BPJ) of the reviewer.

E. Outfall 001 - Daily maximum loadings have been added to this outfall for Total Copper and Total Mercury as per the Upper Calcasieu Estuary TMDL, issued in the Federal Register on June 13, 2002. A monitoring frequency of 1/quarter has been established based on the sampling requirements also established in the TMDL.

F. Outfall 001 - Monthly Average loadings have been established at this outfall for Benzo(a)anthracene and Benzo(a)pyrene as per the Upper Calcasieu Estuary TMDL, issued in the Federal Register on June 13, 2002. The monitoring frequency has been increased from 1/year to 1/quarter based on the sampling requirements also established in the TMDL.

G. Outfall 001 - Ammonia (as N) mass limitations were calculated using the BAT concentrations 2.27 mg/L monthly average and 4.88 mg/L daily maximum, as established in the January 20, 1986 NPDES Fact Sheet and the current flow of 2.549232 MGD. The resulting limitations were 48 lbs/day monthly average and 104 lbs/day daily maximum. However, the Upper Calcasieu Estuary TMDL, issued in the Federal Register on June 13, 2002 requires retention of previous permit limitations for Ammonia (as N), therefore, the 41 lbs/day monthly average and 88 lbs/day daily maximum limitations have been retained from the current LPDES permit, effective on May 15, 2002. The monitoring frequency has been reduced from 1/week to 1/ 2 months (See Fact Sheet VIII.C).

H. Outfalls 001, B01, and/or C01 - A Minimum Quantification Level (MQL) evaluation was done for the parameters listed in the Calcasieu Estuary Toxics TMDL. The evaluation was done to determine compliance with the waste load allocations (WLAs) established in the TMDL and to ensure state water quality standards are being met. Based on Sasol's flow and the assigned WLAs, it has been determined that site specific MQLs are not necessary to ensure compliance and therefore, the MQLs listed in Part II.I of the permit are sufficient at this time.

I. Outfall 001 - the monitoring frequency for Hexachlorobenzene has been increased from 1/year to 1/quarter due to an EPA, Region VI recommendation for quarterly monitoring (at a minimum) on all water quality based effluent limitations.

J. Outfall B01 - This alternate discharge location was previously established, however, this permit defines circumstances in which the outfall may be utilized. This outfall is proposed for use on an emergency basis only during pump failure or maintenance of the discharge line and will not to be used on a permanent basis without receiving a permit modification to include additional requirements.

K. Outfall B01 - 1,2-Dichloroethane, Phenol, Anthracene, Chrysene, Fluoranthene, Pyrene, Phenanthrene, Ammonia (as N), Total Nickel, Total Zinc, Total Calcium, 2-Methylnapthalene, Dibenzo(a,h)anthracene, Total Copper, Total Mercury, Benzo(a)anthracene, and Benzo(a)pyrene were included in the list of impairments for Bayou Verdine, Subsegment 030306. However, TMDL loadings were not established for all parameters at the alternate discharge location.

Outfall B01 is an emergency outfall that will not likely discharge (according to Sasol, this outfall has not discharged in the past 5 years) and in the event there is a discharge it is not expected to occur for extended periods of time. LDEQ has determined that it is not appropriate to utilize Bayou Verdine's margin of safety for an outfall that discharges so infrequently. Instead, LDEQ found it more appropriate to establish the following requirements to ensure protection to the receiving waterbody:

- OCPSF Guideline technology-based effluent limitations (or a water quality based effluent limitation as a result of a water quality screen using the current water quality standards) have been established to address the following impairments: 1,2-Dichloroethane, Phenol, Anthracene, Chrysene, Fluoranthene, Pyrene, and Phenanthrene. The monitoring frequency for 1,2-Dichloroethane has been decreased from 1/week to 1/ 2 months (See Fact Sheet VIII.C). The monitoring frequencies for Phenol, Anthracene, Chrysene, Fluoranthene, Pyrene, and Phenanthrene have been increased from 1/year to 1/quarter due to an EPA, Region VI recommendation for quarterly monitoring (at a minimum) on all water quality based effluent limitations.

- A water quality based effluent limitation has been established as a result of a water quality screen using analytical data from the current application to address an impairment for the following pollutant that was not previously permitted and/or is not covered by OCPSF Guidelines: Total Nickel. A monitoring frequency of 1/quarter has been established based an EPA, Region VI recommendation for quarterly monitoring (at a minimum) on all water quality based effluent limitations.

- The following once per quarter monitor and report only requirements have been established to address impairments for pollutants that were not previously permitted and/or those that are not typically covered by the OCPSF Guidelines: Total Zinc, Total Calcium, 2-Methylnapthalene, and Dibenzo(a,h)anthracene.

- TMDL loadings were assigned to the primary discharge location (Outfall 001), Subsegment 030301 for Total Copper, Total Mercury, Benzo(a)anthracene, and Benzo(a)pyrene. This Office has determined that it is appropriate to retain the TMDL loadings established for Subsegment 030301. Therefore, quarterly monitoring has been established for Total Copper, Total Mercury, Benzo(a)anthracene, and Benzo(a)pyrene based on the sampling requirements established in the TMDL.

- This Office has determined that it is appropriate to retain the TMDL requirements for Ammonia (as N) established for Subsegment 030301. The Upper Calcasieu Estuary TMDL, issued in the Federal Register on June 13, 2002, requires retention of current limitations for Ammonia (as N), therefore 41.0 lbs/day monthly average and 88.0 lbs/day, daily maximum will be applied at this outfall based on best professional judgment. The monitoring frequency has been reduced from 1/week to 1/ 2 months (See Fact Sheet VIII.C).

L. Outfall B01 - A water quality screen was performed for the discharges to Bayou Verdine using the Outfall 001 OCPSF technology based effluent limits and/or analytical data submitted with the LPDES permit application for non-OCPSF parameters. The water quality screen indicated the potential for Total Cyanide, Carbon Tetrachloride, 1,1-Dichloroethylene, Tetrachloroethylene, Hexachlorobenzene, and Hexachlorobutadiene to violate water quality standards. Therefore, in addition to the limitations/requirements established by the TMDL (See Fact Sheet Part VIII.I), water quality based effluent limitation have also been established for Total Cyanide, Carbon Tetrachloride, 1,1-Dichloroethylene, Tetrachloroethylene, Hexachlorobenzene, and Hexachlorobutadiene. The monitoring frequency for Carbon Tetrachloride has been reduced from 1/week to 1/ 2 months (See Fact Sheet VIII.C). The monitoring frequencies for 1,1-Dichloroethylene, Tetrachloroethylene, Hexachlorobenzene, and Hexachlorobutadiene have been increased from 1/year to 1/quarter due to an EPA, Region VI recommendation for quarterly monitoring (at a minimum) on all water quality based effluent limitations. The monitoring frequency for Total Cyanide has been established at 1/quarter based on EPA, Region VI recommendation for quarterly monitoring (at a minimum) on all water quality based effluent limitations.

M. Outfall B01 - the following new Part I requirements have been established to allow for proper monitoring and/or effluent characterization at this alternate discharge location:

- Permittee is required to submit written notification within 48 hours of outfall diversion and another within 48 hours of reverting back to either Outfall 001 or C01.

- Permittee is required to collect and analyze all parameters at least once per calendar year in which a discharge occurs, regardless if a sample has already been collected at Outfalls 001 or C01. Whole Effluent Toxicity (WET) Testing is an exception to this requirement. WET Testing shall be performed in accordance with the requirements of Part II.P in any event where discharges are diverted to this outfall for a period spanning thirty days (of continuous or intermittent discharges).

N. Outfall B01 - the following outfall specific whole effluent dilution series has been established for use in the event discharges are diverted to this outfall for a period spanning thirty days (of continuous or intermittent discharges) and Sasol performs toxicity testing: 21%, 27%, 37%, 49%, and 65%. The critical dilution is established at 49%.

O. Outfall C01 - This alternate discharge location was previously established, however, this permit defines circumstances in which the outfall may be utilized. This outfall is proposed for use on an emergency basis only in the event that the diffuser is taken out of service or during the maintenance of the diffuser and will **not** to be used on a permanent basis without receiving a permit modification to include additional requirements.

P. Outfall C01 - Daily maximum loadings have been added to this outfall for Total Copper and Total Mercury as per the Upper Calcasieu Estuary TMDL, issued in the Federal Register on June 13, 2002. A monitoring frequency of 1/quarter has been established based on the sampling requirements of the TMDL. This Office has determined that it is appropriate to establish the same TMDL limitations assigned to Outfall 001 since the discharges are to the same receiving stream.

Q. Outfall C01 - Monthly Average loadings have been established at this outfall for Benzo(a)anthracene and Benzo(a)pyrene as per the Upper Calcasieu Estuary TMDL, issued in the Federal Register on June 13, 2002. Monitoring frequencies of 1/quarter have been established based on the sampling requirements of the TMDL. This Office has determined that it is appropriate to establish the same TMDL limitations assigned to Outfall 001 since the discharges are to the same receiving stream.

R. Outfall C01 - This Office has determined that it is appropriate to establish the same TMDL limitations assigned to Outfall 001 for Ammonia (as N) since the discharges are to the same receiving stream. The Upper Calcasieu Estuary TMDL, issued in the Federal Register on June 13, 2002, requires retention of current limitations for Ammonia (as N), therefore 41.0 lbs/day monthly average and 88.0 lbs/day, daily maximum will be applied at this outfall based on best

professional judgment. The monitoring frequency has been reduced from 1/week to 1/ 2 months (See Fact Sheet VIII.C).

S. Outfall C01 - A water quality screen was performed for the discharges to the Calcasieu River using the Outfall 001 OCPSF technology based effluent limits and/or analytical data submitted with the LPDES permit application for non-OCPSF parameters. The water quality screen indicated the potential for Total Cyanide, Hexachlorobenzene, and Hexachlorobutadiene to violate water quality standards. Therefore, in addition to the limitations/requirements established by the TMDL (See Fact Sheet Part VIII. P, Q, and R), water quality based effluent limitations have also been established for Total Cyanide, Hexachlorobenzene, and Hexachlorobutadiene. The monitoring frequencies for Hexachlorobenzene, and Hexachlorobutadiene have been increased from 1/year to 1/quarter due to an EPA, Region VI recommendation for quarterly monitoring (at a minimum) on all water quality based effluent limitations. The monitoring frequency for Total Cyanide has been established at 1/quarter based on EPA, Region VI recommendation for quarterly monitoring (at a minimum) on all water quality based effluent limitations.

T. Outfall C01 - the following new Part I requirements have been established to allow for proper monitoring and/or effluent characterization at this alternate discharge location:

- Permittee is required to submit written notification within 48 hours of outfall diversion and another within 48 hours of reverting back to either Outfall 001 or B01.
- Permittee is required to collect and analyze all parameters at least once per calendar year in which a discharge occurs, regardless if a sample has already been collected at Outfalls 001 or B01. Whole Effluent Toxicity (WET) Testing is an exception to this requirement. WET Testing shall be performed in accordance with the requirements of Part II.P in any event where discharges are diverted to this outfall for a period spanning thirty days (of continuous or intermittent discharges).

U. Outfall C01 - the following outfall specific whole effluent dilution series has been established for use in the event discharges are diverted to this outfall for a period spanning thirty day (of continuous or intermittent discharges) and Sasol performs toxicity testing: 0.4%, 0.5%, 0.7%, 1.0%, and 1.3%. The critical dilution is established at 1.0%.

V. Outfalls 002, 004, 008, 018, and 030 - Monitor and report only requirements have been established for Total Copper, Total Mercury,

Total Nickel, Total Zinc, Total Calcium, 1,2-Dichloroethane, Phenol, 2-Methylnapthalene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Chrysene, Dibenzo(a,h)anthracene, Fluoranthene, Pyrene, and Phenanthrene in accordance with the requirements in the Calcasieu Estuary TMDL issued in the Federal Register on June 13, 2002 for Bayou Verdine. A monitoring frequency of 1/quarter has also been established based on the requirements of the TMDL.

W. Outfalls 002, 004, 008, 018, and 030 - monitoring frequencies for Flow, TOC, Oil & Grease, and pH have been changed from 1/event to 1/quarter based on best professional judgment. This is consistent with the frequencies established under the Multi-Sector General Permit for Industrial Stormwater Discharges, LAR050000.

IX. Permit Limit Rationale:

The following section sets forth the principal facts and the significant factual, legal, methodological, and policy questions considered in preparing the draft permit. Also set forth are any calculations or other explanations of the derivation of specific effluent limitations and conditions, including a citation to the applicable effluent limitation guideline or performance standard provisions as required under LAC 33:IX.2707/40 CFR Part 122.44 and reasons why they are applicable or an explanation of how the alternate effluent limitations were developed.

A. TECHNOLOGY-BASED VERSUS WATER QUALITY STANDARDS-BASED EFFLUENT LIMITATIONS AND CONDITIONS

Following regulations promulgated at LAC 33:IX.2707.L.2.b/40 CFR Part 122.44(l)(2)(ii), the draft permit limits are based on either technology-based effluent limits pursuant to LAC 33:IX.2707.A/40 CFR Part 122.44(a) or on State water quality standards and requirements pursuant to LAC 33:IX.2707.D/40 CFR Part 122.44(d), whichever are more stringent.

B. TECHNOLOGY-BASED EFFLUENT LIMITATIONS, CONDITIONS, AND MONITORING REQUIREMENTS

Regulations promulgated at LAC 33:IX.2707.A/40 CFR Part 122.44(a) require technology-based effluent limitations to be placed in LPDES permits based on effluent limitations guidelines where applicable, on BPJ (best professional judgment) in the absence of guidelines, or on a combination of the two. The following is a rationale for types of wastewaters. See outfall information descriptions for associated outfall(s) in Section VII. Regulations also require permits to establish monitoring requirements to yield data representative of the monitored activity [LAC 33:IX.2715/40 CFR 122.48(b)] and to assure compliance with permit limitations [LAC 33:IX.2707.I./40 CFR 122.44(I)].

1. Outfalls 001, B01 and/or C01 - Process Wastewaters

***Outfall 001 -** the continuous discharge of process wastewater, process area stormwater, and miscellaneous utility wastewaters from the Normal Paraffin Unit (NPU), Ethoxylate Unit (ETO), Alcohol Unit (ALC), Alumina Unit (ALU), Linear Alkyl Benzene Unit (LAB), Ethylene Unit (ETH), Steam Plant (STM), Georgia Gulf Lake Charles Vinyl Chloride Monomer (GCLC VCM) Plant, and Activated Sludge Unit (ASU); sanitary wastewater; groundwater; holding ponds/basins stormwater; zeolite regeneration wastewater; boiler blowdown; sulfide caustic; lime settler wastewater; caustic wash quench settler blowdown; benzene contaminated water and steam condensate; and alcohol quench wastewater.

Sasol North America, Inc., Lake Charles Chemical Complex is subject to Best Practicable Control Technology Currently Available (BPT) and Best Available Technology Economically Achievable (BAT) effluent limitation guidelines listed below:

Manufacturing Operation	Guideline
Organic chemical manufacturing	40 CFR 414, Subpart(s) F,G,H and I.

Subpart F = Commodity Organic Chemicals makes up 43.7% of the production at Sasol North America, Inc., Lake Charles Chemical Complex.

Subpart G = Bulk Organic Chemicals makes up 52.4%of the production at Sasol North America, Inc., Lake Charles Chemical Complex.

Subpart H = Specialty Organic Chemicals makes up 3.9% of the production at Sasol North America, Inc., Lake Charles Chemical Complex.

Subpart I = Direct Discharge Point Sources That Use End-Of-Pipe Biological Treatment.

The following wastestreams and flows were used in limitation calculation:

Process	Flow, MGD	GPM
NPU Process WW and SW	0.046368	32.2
ETO Process WW and SW	0.023328	16.2
ALC/ALU Process WW and SW	0.324720	225.5
Caustic Wash Quench Settler Bldwn	0.032544	22.6
Benzene Contaminated WW	0.041760	29.0
LAB Process WW	0.075024	52.1
Ethylene Process WW	0.222624	154.6
Sulfide Caustic Process WW	0.008496	5.9

	Flow, MGD	GPM
GW & GW to VCM Process WW	0.089136	61.9
VCM Process WW	0.248544	172.6
ASU/Zeolite Process WW and SW	0.049680	34.5
Holding Pond Process SW	0.019440	13.5
Boiler Blowdown	0.082368	57.2
Lime Settler Effluent Process WW	0.039024	27.1
Miscellaneous Process WW	0.014256	9.9
Total Process	1.317312	914.8
Sanitary		
Sanitary WW Total	0.019440	13.5
Utility		
NPU Utility WW	0.011088	7.7
ETO Utility WW & CTBLWDWN	0.047808	33.2
ALC/ALU Utility WW & CTBLWDWN	0.162576	112.9
Ethylene Utility WW & CTBLWDWN	0.558432	387.8
ASU Utility WW	0.031968	22.2
LAB Utility WW & CTBLWDWN	0.048240	33.5
VCM Utility WW & CTBLWDWN	0.340848	236.7
Miscellaneous Utility WW	0.005904	4.1
Lime Settler Effluent Utility WW	0.005616	3.9
Total Utility	1.212480	842.0
Total Outfall Flow	**2.549232**	**1770.3**

PARAMETER(S)	MASS, LBS/DAY unless otherwise stated		CONCENTRATION, µG/L unless otherwise stated		MEASUREMENT FREQUENCY
	MONTHLY AVERAGE	DAILY MAXIMUM	MONTHLY AVERAGE	DAILY MAXIMUM	
Flow, MGD	Report	Report	---	---	Continuous
pH Range Excursions No. of Events >60 minutes	---	--	---	0 (*1)	Continuous
pH Range Excursions Monthly Total Accumulated Time in Minutes	---	--	---	446 (*1)	Continuous
pH (Standard Units)	---	---	Report (*1) (Min)	Report (*1) (Max)	Continuous

PARAMETER(S)	MASS, LBS/DAY unless otherwise stated		CONCENTRATION, µG/L unless otherwise stated		MEASUREMENT FREQUENCY
	MONTHLY AVERAGE	DAILY MAXIMUM	MONTHLY AVERAGE	DAILY MAXIMUM	
BOD_5	414	1074	---	---	1/week
COD	2901	7515	---	---	1/week
TSS	633	1919	---	---	2/week
Ammonia (as N) (*2)	41	88	---	---	1/2 months
Total Copper (*2)	---	2.44	---	---	1/quarter
Total Mercury (*2)	---	0.0168	---	---	1/quarter
Benzo(a)anthracene (*2)	0.164	---	---	---	1/quarter
Benzo(a)pyrene (*2)	0.164	---	---	---	1/quarter
Acrylonitrile	1.05	2.66	---	---	1/year
Benzene	0.41	1.49	---	---	1/2 months
Carbon Tetrachloride	0.20	0.42	---	---	1/2 months
Chlorobenzene	0.16	0.31	---	---	1/2 months
Chloroethane	1.14	2.94	---	---	1/2 months
Chloroform	0.23	0.51	---	---	1/2 months
1,1-Dichloroethane	0.24	0.65	---	---	1/2 months
1,2-Dichloroethane	0.75	2.32	---	---	1/2 months
1,1-Dichloroethylene	0.18	0.27	---	---	1/year
1,2-trans-Dichloroethylene	0.23	0.59	---	---	1/year
1,2-Dichloropropane	1.68	2.53	---	---	1/year
1,3-Dichloropropylyene	0.32	0.48	---	---	1/year
Ethylbenzene	0.35	1.19	---	---	1/2 months
Methyl Chloride	0.94	2.09	---	---	1/2 months

PARAMETER(S)	MASS, LBS/DAY unless otherwise stated		CONCENTRATION, µG/L unless otherwise stated		MEASUREMENT FREQUENCY
	MONTHLY AVERAGE	DAILY MAXIMUM	MONTHLY AVERAGE	DAILY MAXIMUM	
Methylene Chloride	0.44	0.98	---	---	1/2 months
Tetrachloroethylene	0.24	0.62	---	---	1/year
Toluene	0.29	0.88	---	---	1/2 months
1,1,1-Trichloroethane	0.23	0.59	---	---	1/2 months
1,1,2-Trichloroethane	0.23	0.59	---	---	1/2 months
Trichloroethylene	0.23	0.59	---	---	1/year
Vinyl Chloride	1.14	2.94	---	---	1/2 months
2-Chlorophenol	0.34	1.08	---	---	1/year
2,4-Dichlorophenol	0.43	1.23	---	---	1/year
2,4-Dimethylphenol	0.20	0.40	---	---	1/year
4,6-Dinitro-o-Cresol	0.86	3.04	---	---	1/year
2,4-Dinitrophenol	0.78	1.35	---	---	1/year
2-Nitrophenol	0.45	0.76	---	---	1/year
4-Nitrophenol	0.79	1.36	---	---	1/year
Phenol	0.16	0.29	---	---	1/year
Acenaphthene	0.24	0.65	---	---	1/year
Acenaphthylene	0.24	0.65	---	---	1/year
Anthracene	0.24	0.65	---	---	1/year
3,4-Benzofluoranthene	0.25	0.67	---	---	1/year
Benzo(k)fluoranthene	0.24	0.65	---	---	1/year
Bis(2-ethylhexyl)phthalate	1.13	3.07	---	---	1/year
Chrysene	0.24	0.65	---	---	1/year
1,2-Dichlorobenzene	0.85	1.79	---	---	1/year

PARAMETER(S)	MASS, LBS/DAY unless otherwise stated		CONCENTRATION, µG/L unless otherwise stated		MEASUREMENT FREQUENCY
	MONTHLY AVERAGE	DAILY MAXIMUM	MONTHLY AVERAGE	DAILY MAXIMUM	
1,3-Dichlorobenzene	0.34	0.48	---	---	1/year
1,4-Dichlorobenzene	0.16	0.31	---	---	1/year
Diethyl phthalate	0.89	2.23	---	---	1/year
Dimethyl phthalate	0.21	0.52	---	---	1/year
Di-n-butyl phthalate	0.30	0.63	---	---	1/year
2,4-Dinitrotoluene	1.24	3.13	---	---	1/year
2,6-Dinitrotoluene	2.80	7.04	---	---	1/year
Fluoranthene	0.27	0.75	---	---	1/year
Fluorene	0.24	0.65	---	---	1/year
Hexachlorobenzene (*2)	0.005	0.012	---	---	1/quarter
Hexachlorobutadiene	0.22	0.54	---	---	1/year
Hexachloroethane	0.23	0.59	---	---	1/year
Naphthalene	0.24	0.65	---	---	1/year
Nitrobenzene	0.30	0.75	---	---	1/year
Phenanthrene	0.24	0.65	---	---	1/year
Pyrene	0.27	0.74	---	---	1/year
1,2,4-Trichlorobenzene	0.75	1.54	---	---	1/year

(*1) The pH shall be within a range of 6.0 - 9.0 Standard Units at all times subject to the continuous monitoring pH range excursion provision in Part II, Paragraph H of the draft permit.

(*2) Water quality based effluent limitations.

Calculations and basis of permit limitations are found at Appendices A-1, B-1, and associated appendices. See below for site-specific considerations.

Site-Specific Technology and Water Quality Consideration(s) for Outfall 001

Flow - this requirement has been established in accordance with LAC 33:IX.2707.I.1.b. and retained from the current LPDES permit effective on May 15, 2002. The continuous monitoring frequency has also been retained.

pH - this requirement has been established in accordance with LAC 33:IX.1113.C.1. and retained from the current LPDES permit effective on May 15, 2002. The continuous monitoring frequency has also been retained.

BOD_5 and TSS - monthly average and daily maximum limitations have been established in accordance with OCPSF Guidelines under 40 CFR 414, Subparts F, G, and H with a process wastewater flow of 1.317312 MGD. Additionally, allocations have been granted for sanitary wastewater and utility wastewaters based on best professional judgment. Sanitary allocations are applied to a flow of 0.01944 MGD and based on a 30 mg/L monthly average concentration and 45 mg/L daily maximum concentration for BOD_5 and TSS. Utility wastewater allocations are applied to a flow of 1.21248 MGD and based on a 5 mg/L monthly average concentration and 10 mg/L daily maximum concentration for BOD_5 and a 10 mg/L monthly average concentration and 20 mg/L daily maximum concentration for TSS.

Sasol requested a monitoring frequency reduction for BOD_5 and TSS from 2/week to 1/month in accordance with the USEPA Memorandum "Interim Guidance for Performance-Based Reductions of NPDES Permit Monitoring Frequencies." This request has been partially granted. Although Sasol does qualify for the requested reduction for BOD_5, the Department has determined that 1/month sampling is not an adequate frequency for conventional and non-conventional parameters for major facilities. Therefore, the frequency for BOD_5 has been reduced from 2/week to 1/week. No reductions were granted for TSS due to an excursion reported in March 2007.

COD - monthly average and daily maximum limitations are based on a COD to BOD_5 ratio of 7:1 and are applied as best available technology (BAT). The basis for these requirements has been retained from the current LPDES permit effective on May 15, 2002. Sasol requested a monitoring frequency reduction for COD from 2/week to 1/month in accordance with the USEPA Memorandum "Interim Guidance for Performance-Based Reductions of NPDES Permit Monitoring Frequencies." This request has been partially granted. Although Sasol does qualify for the requested reduction for COD, the Department has determined that 1/month sampling is not an adequate frequency for conventional and non-conventional parameters for major facilities. Therefore, the frequency for COD has been reduced from

2/week to 1/week.

Ammonia (as N) - mass limitations were calculated using the BAT concentrations 2.27 mg/L monthly average and 4.88 mg/L daily maximum, as established in the January 20, 1986 NPDES Fact Sheet using the current outfall flow of 2.549232 MGD. The resulting limitations were 48 lbs/day monthly average and 104 lbs/day daily maximum. However, the Upper Calcasieu Estuary TMDL, issued in the Federal Register on June 13, 2002 requires retention of previous permit limitations for Ammonia (as N), therefore, the 41 lbs/day monthly average and 88 lbs/day daily maximum limitations were retained from the current LPDES permit, effective on May 15, 2002. Per request from Sasol, the monitoring frequency has been reduced from 1/week to 1/ 2 months in accordance with the USEPA Memorandum "Interim Guidance for Performance-Based Reductions of NPDES Permit Monitoring Frequencies."

Total Copper, Total Mercury, Benzo(a)anthracene, and Benzo(a)pyrene - loadings have been established at this outfall per the Upper Calcasieu Estuary TMDL, issued in the Federal Register on June 13, 2002. A monitoring frequency of 1/quarter has been established based on the sampling requirements established in the TMDL.

Benzene, Carbon Tetrachloride, Chlorobenzene, Chloroethane, Chloroform, 1,1-Dichloroethane, 1,2-Dichloroethane, Ethylbenzene, Methyl Chloride, Methylene Chloride, Toluene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, and Vinyl Chloride - monthly average and daily maximum limitations have been established to ensure compliance with the OCPSF Guidelines under 40 CFR Part 414, Subparts F, G, H, and I. Per request from Sasol, the monitoring frequency has been reduced from 1/week to 1/ 2 months in accordance with the USEPA Memorandum "Interim Guidance for Performance-Based Reductions of NPDES Permit Monitoring Frequencies."

Hexachlorobenzene - monthly average and daily maximum limitations have been established to ensure compliance the OCPSF Guidelines under 40 CFR Part 414, Subparts F, G, H, and I. Additionally, water quality based effluent limitations were established using guidance procedures presented in the Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards, LDEQ, April 16, 2008. The monitoring frequency has been increased from 1/year to 1/quarter due to an EPA, Region VI recommendation for quarterly monitoring (at a minimum) on all water quality based effluent limitations.

Acrylonitrile, 1,1-Dichloroethylene, 1,2-trans-Dichloroethylene, 1,2-Dichloropropane, 1,3-Dichloropropylyene, Tetrachloroethylene, Trichloroethylene, 2-Chlorophenol, 2,4-Dichlorophenol, 2,4-Dimethylphenol, 4,6-Dinitro-o-Cresol, 2,4-Dinitrophenol, 2-Nitrophenol, 4-Nitrophenol, Phenol, Acenaphthene, Acenaphthylene,

Anthracene, 3,4-Benzofluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl)phthalate, Chrysene, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, Diethyl phthalate, Dimethyl phthalate, Di-n-butyl phthalate, 2,4-Dinitrotoluene, 2,6-Dinitrotoluene, Fluoranthene, Fluorene, Hexachlorobutadiene, Hexachloroethane, Naphthalene, Nitrobenzene, Phenanthrene, Pyrene, and 1,2,4-Trichlorobenzene - monthly average and daily maximum limitations have been established to ensure compliance with the OCPSF Guidelines under 40 CFR Part 414, Subparts F, G, H, and I. A monitoring frequency of 1/year has been retained from the current LPDES permit effective on May 15, 2002 for all parameters. This frequency is appropriate since these pollutants are not expected to be on site.

***Outfall B01** - the continuous discharge of process wastewater, process area stormwater, and miscellaneous utility wastewaters from the Normal Paraffin Unit (NPU), Ethoxylate Unit (ETO), Alcohol Unit (ALC), Alumina Unit (ALU), Linear Alkyl Benzene Unit (LAB), Ethylene Unit (ETH), Steam Plant (STM), Georgia Gulf Lake Charles Vinyl Chloride Monomer (GCLC VCM) Plant, and Activated Sludge Unit (ASU); sanitary wastewater; groundwater; holding ponds/basins stormwater; zeolite regeneration wastewater; boiler blowdown; sulfide caustic; lime settler wastewater; caustic wash quench settler blowdown; benzene contaminated water and steam condensate; and alcohol quench wastewater.

Sasol North America, Inc., Lake Charles Chemical Complex is subject to Best Practicable Control Technology Currently Available (BPT) and Best Available Technology Economically Achievable (BAT) effluent limitation guidelines listed below:

Manufacturing Operation	Guideline
Organic chemical manufacturing	40 CFR 414, Subpart(s) F,G,H and I.

Subpart F = Commodity Organic Chemicals makes up 43.7% of the production at Sasol North America, Inc., Lake Charles Chemical Complex.

Subpart G = Bulk Organic Chemicals makes up 52.4%of the production at Sasol North America, Inc., Lake Charles Chemical Complex.

Subpart H = Specialty Organic Chemicals makes up 3.9% of the production at Sasol North America, Inc., Lake Charles Chemical Complex.

Subpart I = Direct Discharge Point Sources That Use End-Of-Pipe Biological Treatment.

The following wastestreams and flows were used in limitation calculation:

Process	Flow, MGD	GPM
NPU Process WW and SW	0.046368	32.2
ETO Process WW and SW	0.023328	16.2
ALC/ALU Process WW and SW	0.324720	225.5
Caustic Wash Quench Settler Bldwn	0.032544	22.6
Benzene Contaminated WW	0.041760	29.0
LAB Process WW	0.075024	52.1
Ethylene Process WW	0.222624	154.6
Sulfide Caustic Process WW	0.008496	5.9
GW & GW to VCM Process WW	0.089136	61.9
VCM Process WW	0.248544	172.6
ASU/Zeolite Process WW and SW	0.049680	34.5
Holding Pond Process SW	0.019440	13.5
Boiler Blowdown	0.082368	57.2
Lime Settler Effluent Process WW	0.039024	27.1
Miscellaneous Process WW	0.014256	9.9
Total Process	1.317312	914.8
Sanitary		
Sanitary WW Total	0.019440	13.5
Utility		
NPU Utility WW	0.011088	7.7
ETO Utility WW & CTBLWDWN	0.047808	33.2
ALC/ALU Utility WW & CTBLWDWN	0.162576	112.9
Ethylene Utility WW & CTBLWDWN	0.558432	387.8
ASU Utility WW	0.031968	22.2
LAB Utility WW & CTBLWDWN	0.048240	33.5
VCM Utility WW & CTBLWDWN	0.340848	236.7
Miscellaneous Utility WW	0.005904	4.1
Lime Settler Effluent Utility WW	0.005616	3.9
Total Utility	1.212480	842.0
Total Outfall Flow	**2.549232**	**1770.3**

PARAMETER(S)	MASS, LBS/DAY unless otherwise stated		CONCENTRATION, µG/L unless otherwise stated		MEASUREMENT FREQUENCY
	MONTHLY AVERAGE	DAILY MAXIMUM	MONTHLY AVERAGE	DAILY MAXIMUM	
Flow, MGD	Report	Report	---	---	Continuous
pH Range Excursions No. of Events >60 minutes	---	--	---	0 (*1)	Continuous
pH Range Excursions Monthly Total Accumulated Time in Minutes	---	--	---	446 (*1)	Continuous
pH (Standard Units)	---	---	Report (*1) (Min)	Report (*1) (Max)	Continuous
BOD_5	414	1074	---	---	1/week
COD	2901	7515	---	---	1/week
TSS	633	1919	---	---	2/week
Ammonia (as N) (*2)	41	88	---	---	1/2 months
Total Copper (*2)	---	2.44	---	---	1/quarter
Total Mercury (*2)	---	0.0168	---	---	1/quarter
Total Nickel (*2)	0.25	0.59	---	---	1/quarter
Total Zinc	---	Report	---	---	1/quarter
Total Calcium	---	Report	---	---	1/quarter
1,2-Dichloroethane (*2)	0.60	1.43	---	---	1/2 months
Phenol	0.16	0.29	---	---	1/quarter
2-Methylnapthalene	---	Report	---	---	1/quarter
Anthracene	0.24	0.65	---	---	1/quarter
Benzo(a)anthracene (*2)	0.164	---	---	---	1/quarter

PARAMETER(S)	MASS, LBS/DAY unless otherwise stated		CONCENTRATION, µG/L unless otherwise stated		MEASUREMENT FREQUENCY
	MONTHLY AVERAGE	DAILY MAXIMUM	MONTHLY AVERAGE	DAILY MAXIMUM	
Benzo(a)pyrene (*2)	0.164	---	---	---	1/quarter
Chrysene	0.24	0.65	---	---	1/quarter
Dibenzo(a,h)anthracene	---	Report	---	---	1/quarter
Fluoranthene	0.27	0.75	---	---	1/quarter
Pyrene	0.27	0.74	---	---	1/quarter
Phenanthrene	0.24	0.65	---	---	1/quarter
Total Cyanide (*2)	0.03	0.07	---	---	1/quarter
Acrylonitrile	1.05	2.66	---	---	1/year
Benzene	0.41	1.49	---	---	1/2 months
Carbon Tetrachloride (*2)	0.11	0.25	---	---	1/2 months
Chlorobenzene	0.16	0.31	---	---	1/2 months
Chloroethane	1.14	2.94	---	---	1/2 months
Chloroform	0.23	0.51	---	---	1/2 months
1,1-Dichloroethane	0.24	0.65	---	---	1/2 months
1,1-Dichloroethylene (*2)	0.05	0.12	---	---	1/quarter
1,2-trans-Dichloroethylene	0.23	0.59	---	---	1/year
1,2-Dichloropropane	1.68	2.53	---	---	1/year
1,3-Dichloropropylyene	0.32	0.48	---	---	1/year
Ethylbenzene	0.35	1.19	---	---	1/2 months
Methyl Chloride	0.94	2.09	---	---	1/2 months
Methylene Chloride	0.44	0.98	---	---	1/2 months

PARAMETER(S)	MASS, LBS/DAY unless otherwise stated		CONCENTRATION, µG/L unless otherwise stated		MEASUREMENT FREQUENCY
	MONTHLY AVERAGE	DAILY MAXIMUM	MONTHLY AVERAGE	DAILY MAXIMUM	
Tetrachloroethylene (*2)	0.22	0.52	---	---	1/quarter
Toluene	0.29	0.88	---	---	1/2 months
1,1,1-Trichloroethane	0.23	0.59	---	---	1/2 months
1,1,2-Trichloroethane	0.23	0.59	---	---	1/2 months
Trichloroethylene	0.23	0.59	---	---	1/year
Vinyl Chloride	1.14	2.94	---	---	1/2 months
2-Chlorophenol	0.34	1.08	---	---	1/year
2,4-Dichlorophenol	0.43	1.23	---	---	1/year
2,4-Dimethylphenol	0.20	0.40	---	---	1/year
4,6-Dinitro-o-Cresol	0.86	3.04	---	---	1/year
2,4-Dinitrophenol	0.78	1.35	---	---	1/year
2-Nitrophenol	0.45	0.76	---	---	1/year
4-Nitrophenol	0.79	1.36	---	---	1/year
Acenaphthene	0.24	0.65	---	---	1/year
Acenaphthylene	0.24	0.65	---	---	1/year
3,4-Benzofluoranthene	0.25	0.67	---	---	1/year
Benzo(k)fluoranthene	0.24	0.65	---	---	1/year
Bis(2-ethylhexyl)phthalate	1.13	3.07	---	---	1/year
1,2-Dichlorobenzene	0.85	1.79	---	---	1/year
1,3-Dichlorobenzene	0.34	0.48	---	---	1/year
1,4-Dichlorobenzene	0.16	0.31	---	---	1/year
Diethyl phthalate	0.89	2.23	---	---	1/year
Dimethyl phthalate	0.21	0.52	---	---	1/year

PARAMETER(S)	MASS, LBS/DAY unless otherwise stated		CONCENTRATION, µG/L unless otherwise stated		MEASUREMENT FREQUENCY
	MONTHLY AVERAGE	DAILY MAXIMUM	MONTHLY AVERAGE	DAILY MAXIMUM	
Di-n-butyl phthalate	0.30	0.63	---	---	1/year
2,4-Dinitrotoluene	1.24	3.13	---	---	1/year
2,6-Dinitrotoluene	2.80	7.04	---	---	1/year
Fluorene	0.24	0.65	---	---	1/year
Hexachlorobenzene (*2)	0.000022	0.000052	---	---	1/quarter
Hexachlorobutadiene (*2)	0.010	0.023	---	---	1/quarter
Hexachloroethane	0.23	0.59	---	---	1/year
Naphthalene	0.24	0.65	---	---	1/year
Nitrobenzene	0.30	0.75	---	---	1/year
1,2,4-Trichlorobenzene	0.75	1.54	---	---	1/year

(*1) The pH shall be within a range of 6.0 - 9.0 Standard Units at all times subject to the continuous monitoring pH range excursion provision in Part II, Paragraph H of the draft permit.

(*2) Water quality based effluent limitations.

Calculations and basis of permit limitations are found at Appendix A-1, B-4, and associated appendices. See below for site-specific considerations.

<u>Site-Specific Technology and Water Quality Consideration(s) for Outfall B01</u>

This outfall is proposed for use on an emergency basis only during pump failure or maintenance of the discharge line and will not to be used on a permanent basis without receiving a permit modification to include additional requirements.

Flow - this requirement has been established in accordance with LAC 33:IX.2707.I.1.b. and retained from the current LPDES permit effective on May 15, 2002. The continuous monitoring frequency has also been retained.

pH - this requirement has been established in accordance with LAC 33:IX.1113.C.1. and retained from the current LPDES permit effective on May 15, 2002. The continuous monitoring frequency has also been retained.

BOD_5 and TSS - monthly average and daily maximum limitations have been established in accordance with OCPSF Guidelines under 40 CFR 414, Subparts F, G, and H with a process wastewater flow of 1.317312 MGD. Additionally, allocations have been granted for sanitary wastewater and utility wastewaters based on best professional judgment. Sanitary allocations are applied to a flow of 0.01944 MGD and based on a 30 mg/L monthly average concentration and 45 mg/L daily maximum concentration for BOD_5 and TSS. Utility wastewater allocations are applied to a flow of 1.21248 MGD and based on a 5 mg/L monthly average concentration and 10 mg/L daily maximum concentration for BOD_5 and a 10 mg/L monthly average concentration and 20 mg/L daily maximum concentration for TSS.

Sasol requested a monitoring frequency reduction for BOD_5 and TSS from 2/week to 1/month in accordance with the USEPA Memorandum "Interim Guidance for Performance-Based Reductions of NPDES Permit Monitoring Frequencies." This request has been partially granted. Although Sasol does qualify for the requested reduction for BOD_5, the Department has determined that 1/month sampling is not an adequate frequency for conventional and non-conventional parameters for major facilities. Therefore, the frequency for BOD_5 has been reduced from 2/week to 1/week. No reductions were granted for TSS due to an excursion reported in March 2007.

COD - monthly average and daily maximum limitations are based on a COD to BOD_5 ratio of 7:1 and are applied as best available technology (BAT). The basis of this requirement has been retained from the current LPDES permit effective on May 15, 2002. Sasol requested a monitoring frequency reduction for COD from 2/week to 1/month in accordance with the USEPA Memorandum "Interim Guidance for Performance-Based Reductions of NPDES Permit Monitoring Frequencies." This request has been partially granted. Although Sasol does qualify for the requested reduction for COD, the Department has determined that 1/month sampling is not an adequate frequency for conventional and non-conventional parameters for major facilities. Therefore, the frequency for COD has been reduced from 2/week to 1/week.

Ammonia (as N) - Ammonia (as N) - mass limitations were calculated using the BAT concentrations 2.27 mg/L for monthly average and 4.88 mg/L for the daily maximum, as established in the January 20, 1986 NPDES Fact Sheet and the current outfall flow of 2.549232 MGD. The resulting limitations were 48 lbs/day monthly average and 104 lbs/day daily maximum. However, this Office has determined that it is more appropriate to apply the TMDL requirements for Ammonia (as

N) as established at Subsegment 030301 and the current LPDES permit, effective on May 15, 2002. Therefore, the monthly average limitation of 41 lbs/day and the daily maximum limitation of 88 lbs/day has been established based on best professional judgment. Per request from Sasol, the monitoring frequency has been reduced from 1/week to 1/ 2 months in accordance with the USEPA Memorandum "Interim Guidance for Performance-Based Reductions of NPDES Permit Monitoring Frequencies."

Total Copper, Total Mercury, Benzo(a)anthracene, and Benzo(a)pyrene - these parameters were identified as pollutants of concern in the Calcasieu TMDL for Subsegment 030306, issued in the Federal Register on June 13, 2002: However, the TMDL failed to establish any requirements for these parameters at this alternate outfall location. Therefore, to ensure protection of the receiving waterbody, this Office has determined that it is appropriate to apply the loadings established for Subsegment 030301 at the alternate outfall location based on best professional judgment. A monitoring frequency of 1/quarter has also been established based on best professional judgment using the sampling frequency requirements suggested in the Calcasieu TMDL for Subsegment 030301.

Total Zinc, Total Calcium, 2-Methylnapthalene, and Dibenzo(a,h)anthracene - these parameters were identified as pollutants of concern in the Calcasieu TMDL for Subsegment 030306, issued in the Federal Register on June 13, 2002. However, the TMDL failed to establish any requirements for these parameters at this alternate outfall location. Therefore, to ensure protection of the receiving waterbody, monitor and report only requirements have been established based on best professional judgment. A monitoring frequency of 1/quarter has been established due to an EPA, Region VI recommendation for quarterly monitoring (at a minimum) on all water quality based effluent requirements.

Total Nickel and Total Cyanide - monthly average and daily maximum limitations have been established as water quality based effluent limitations using analytical data (0.3292 lbs/day for Total Nickel and 0.093 lbs/day for Total Cyanide) provided in the addendum to the LPDES permit application dated December 19, 2006. These limitations were established using guidance procedures presented in the Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards, LDEQ, April 16, 2008. A monitoring frequency of 1/quarter has been established due to an EPA, Region VI recommendation for quarterly monitoring (at a minimum) on all water quality based effluent requirements.

1,2-Dichloroethane - this parameter has been identified as a pollutant of concern in the Calcasieu TMDL. However, the TMDL failed to establish any requirements for this parameter at this alternate outfall location. Therefore, to ensure protection of the receiving

waterbody monthly average and daily maximum limitations were calculated in accordance with OCPSF Guidelines under 40 CFR Part 414, Subparts F, G, H, and I. Additionally, water quality based effluent limitations were established using guidance procedures presented in the Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards, LDEQ, April 16, 2008. Per request from Sasol, the monitoring frequency has been reduced from 1/week to 1/ 2 months in accordance with the USEPA Memorandum "Interim Guidance for Performance-Based Reductions of NPDES Permit Monitoring Frequencies."

Phenol, Anthracene, Chrysene, Fluoranthene, Pyrene, and Phenanthrene - this parameters have been identified as pollutants of concern in the Calcasieu TMDL. However, the TMDL failed to establish any requirements for these parameters at this alternate outfall location. Therefore, to ensure protection of the receiving waterbody monthly average and daily maximum limitations were calculated in accordance with current water quality standards and the OCPSF Guidelines under 40 CFR Part 414, Subparts F, G, H, and I. The monitoring frequencies have been increased from 1/year to 1/quarter based on best professional judgment. This Office has determined that 1/quarter monitoring is appropriate due to an EPA, Region VI recommendation for quarterly monitoring (at a minimum) on all water quality based requirements.

Carbon Tetrachloride - monthly average and daily maximum limitations were calculated in accordance with the OCPSF Guidelines under 40 CFR Part 414, Subparts F, G, H, and I. Additionally, water quality based effluent limitations were established using guidance procedures presented in the Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards, LDEQ, April 16, 2008. Per request from Sasol, the monitoring frequency has been reduced from 1/week to 1/ 2 months in accordance with the USEPA Memorandum "Interim Guidance for Performance-Based Reductions of NPDES Permit Monitoring Frequencies."

Benzene, Chlorobenzene, Chloroethane, Chloroform, 1,1-Dichloroethane, Ethylbenzene, Methyl Chloride, Methylene Chloride, Toluene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, and Vinyl Chloride - monthly average and daily maximum limitations for these parameters have been established to ensure compliance with the OCPSF Guidelines under 40 CFR Part 414, Subparts F, G, H, and I. Per request from Sasol, the monitoring frequency has been reduced from 1/week to 1/ 2 months in accordance with the USEPA Memorandum "Interim Guidance for Performance-Based Reductions of NPDES Permit Monitoring Frequencies."

1,1-Dichloroethylene, Tetrachloroethylene, Hexachlorobenzene, and Hexachlorobutadiene - monthly average and daily maximum limitations were calculated in accordance with the OCPSF Guidelines under 40 CFR

Part 414, Subparts F, G, H, and I. Additionally, water quality based effluent limitations were established using guidance procedures presented in the Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards, LDEQ, April 16, 2008. The monitoring frequencies have been increased from 1/year to 1/quarter due to an EPA, Region VI recommendation for quarterly monitoring (at a minimum) on all water quality based effluent limitations.

Acrylonitrile, 1,2-trans-Dichloroethylene, 1,2-Dichloropropane, 1,3-Dichloropropylyene, Trichloroethylene, 2-Chlorophenol, 2,4-Dichlorophenol, 2,4-Dimethylphenol, 4,6-Dinitro-o-Cresol, 2,4-Dinitrophenol, 2-Nitrophenol, 4-Nitrophenol, Acenaphthene, Acenaphthylene, 3,4-Benzofluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl)phthalate, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, Diethyl phthalate, Dimethyl phthalate, Di-n-butyl phthalate, 2,4-Dinitrotoluene, 2,6-Dinitrotoluene, Fluorene, Hexachloroethane, Naphthalene, Nitrobenzene, and 1,2,4-Trichlorobenzene - Monthly Average and Daily Maximum limitations for these parameters have been established to ensure compliance with the OCPSF Guidelines under 40 CFR Part 414, Subparts F, G, H, and I. A monitoring frequency of 1/year has been retained from the current LPDES permit effective on May 15, 2002. This frequency is appropriate since these pollutants are not expected to be on site.

***Outfall C01** - the continuous discharge of process wastewater, process area stormwater, and miscellaneous utility wastewaters from the Normal Paraffin Unit (NPU), Ethoxylate Unit (ETO), Alcohol Unit (ALC), Alumina Unit (ALU), Linear Alkyl Benzene Unit (LAB), Ethylene Unit (ETH), Steam Plant (STM), Georgia Gulf Lake Charles Vinyl Chloride Monomer (GCLC VCM) Plant, and Activated Sludge Unit (ASU); sanitary wastewater; groundwater; holding ponds/basins stormwater; zeolite regeneration wastewater; boiler blowdown; sulfide caustic; lime settler wastewater; caustic wash quench settler blowdown; benzene contaminated water and steam condensate; and alcohol quench wastewater.

Sasol North America, Inc., Lake Charles Chemical Complex is subject to Best Practicable Control Technology Currently Available (BPT) and Best Available Technology Economically Achievable (BAT) effluent limitation guidelines listed below:

Manufacturing Operation	Guideline
Organic chemical manufacturing	40 CFR 414, Subpart(s) F,G,H and I.

Subpart F = Commodity Organic Chemicals makes up 43.7% of the production at Sasol North America, Inc., Lake Charles Chemical Complex.

Subpart G = Bulk Organic Chemicals makes up 52.4%of the production at Sasol North America, Inc., Lake Charles Chemical Complex.

Subpart H = Specialty Organic Chemicals makes up 3.9% of the production at Sasol North America, Inc., Lake Charles Chemical Complex.

Subpart I = Direct Discharge Point Sources That Use End-Of-Pipe Biological Treatment.

The following wastestreams and flows were used in limitation calculation:

Process	Flow, MGD	GPM
NPU Process WW and SW	0.046368	32.2
ETO Process WW and SW	0.023328	16.2
ALC/ALU Process WW and SW	0.324720	225.5
Caustic Wash Quench Settler Bldwn	0.032544	22.6
Benzene Contaminated WW	0.041760	29.0
LAB Process WW	0.075024	52.1
Ethylene Process WW	0.222624	154.6
Sulfide Caustic Process WW	0.008496	5.9
GW & GW to VCM Process WW	0.089136	61.9
VCM Process WW	0.248544	172.6
ASU/Zeolite Process WW and SW	0.049680	34.5
Holding Pond Process SW	0.019440	13.5
Boiler Blowdown	0.082368	57.2
Lime Settler Effluent Process WW	0.039024	27.1
Miscellaneous Process WW	0.014256	9.9
Total Process	1.317312	914.8
Sanitary		
Sanitary WW Total	0.019440	13.5
Utility		
NPU Utility WW	0.011088	7.7
ETO Utility WW & CTBLWDWN	0.047808	33.2
ALC/ALU Utility WW & CTBLWDWN	0.162576	112.9
Ethylene Utility WW & CTBLWDWN	0.558432	387.8
ASU Utility WW	0.031968	22.2
LAB Utility WW & CTBLWDWN	0.048240	33.5
VCM Utility WW & CTBLWDWN	0.340848	236.7
Miscellaneous Utility WW	0.005904	4.1
Lime Settler Effluent Utility WW	0.005616	3.9
Total Utility	1.212480	842.0
Total Outfall Flow	**2.549232**	**1770.3**

PARAMETER(S)	MASS, LBS/DAY unless otherwise stated		CONCENTRATION, µG/L unless otherwise stated		MEASUREMENT FREQUENCY
	MONTHLY AVERAGE	DAILY MAXIMUM	MONTHLY AVERAGE	DAILY MAXIMUM	
Flow, MGD	Report	Report	---	---	Continuous
pH Range Excursions No. of Events >60 minutes	---	--	---	0 (*1)	Continuous
pH Range Excursions Monthly Total Accumulated Time in Minutes	---	--	---	446 (*1)	Continuous
pH (Standard Units)	---	---	Report (*1) (Min)	Report (*1) (Max)	Continuous
BOD_5	414	1074	---	---	1/week
COD	2901	7515	---	---	1/week
TSS	633	1919	---	---	2/week
Ammonia (as N) (*2)	41	88	---	---	1/2 months
Total Copper (*2)	---	2.44	---	---	1/quarter
Total Mercury (*2)	---	0.0168	---	---	1/quarter
Benzo(a)anthracene (*2)	0.164	---	---	---	1/quarter
Benzo(a)pyrene (*2)	0.164	---	---	---	1/quarter
Total Cyanide	0.10	0.24	---	---	1/quarter
Acrylonitrile	1.05	2.66	---	---	1/year
Benzene	0.41	1.49	---	---	1/2 months
Carbon Tetrachloride	0.20	0.42	---	---	1/2 months
Chlorobenzene	0.16	0.31	---	---	1/2 months
Chloroethane	1.14	2.94	---	---	1/2 months
Chloroform	0.23	0.51	---	---	1/2 months

PARAMETER(S)	MASS, LBS/DAY unless otherwise stated		CONCENTRATION, µG/L unless otherwise stated		MEASUREMENT FREQUENCY
	MONTHLY AVERAGE	DAILY MAXIMUM	MONTHLY AVERAGE	DAILY MAXIMUM	
1,1-Dichloroethane	0.24	0.65	---	---	1/2 months
1,2-Dichloroethane	0.75	2.32	---	---	1/2 months
1,1-Dichloroethylene	0.18	0.27	---	---	1/year
1,2-trans-Dichloroethylene	0.23	0.59	---	---	1/year
1,2-Dichloropropane	1.68	2.53	---	---	1/year
1,3-Dichloropropylyene	0.32	0.48	---	---	1/year
Ethylbenzene	0.35	1.19	---	---	1/2 months
Methyl Chloride	0.94	2.09	---	---	1/2 months
Methylene Chloride	0.44	0.98	---	---	1/2 months
Tetrachloroethylene	0.24	0.62	---	---	1/year
Toluene	0.29	0.88	---	---	1/2 months
1,1,1-Trichloroethane	0.23	0.59	---	---	1/2 months
1,1,2-Trichloroethane	0.23	0.59	---	---	1/2 months
Trichloroethylene	0.23	0.59	---	---	1/year
Vinyl Chloride	1.14	2.94	---	---	1/2 months
2-Chlorophenol	0.34	1.08	---	---	1/year
2,4-Dichlorophenol	0.43	1.23	---	---	1/year
2,4-Dimethylphenol	0.20	0.40	---	---	1/year
4,6-Dinitro-o-Cresol	0.86	3.04	---	---	1/year
2,4-Dinitrophenol	0.78	1.35	---	---	1/year
2-Nitrophenol	0.45	0.76	---	---	1/year
4-Nitrophenol	0.79	1.36	---	---	1/year
Phenol	0.16	0.29	---	---	1/year

PARAMETER(S)	MASS, LBS/DAY unless otherwise stated		CONCENTRATION µG/L unless otherwise stated		MEASUREMENT FREQUENCY
	MONTHLY AVERAGE	DAILY MAXIMUM	MONTHLY AVERAGE	DAILY MAXIMUM	
Acenaphthene	0.24	0.65	---	---	1/year
Acenaphthylene	0.24	0.65	---	---	1/year
Anthracene	0.24	0.65	---	---	1/year
3,4-Benzofluoranthene	0.25	0.67	---	---	1/year
Benzo(k)fluoranthene	0.24	0.65	---	---	1/year
Bis(2-ethylhexyl)phthalate	1.13	3.07	---	---	1/year
Chrysene	0.24	0.65	---	---	1/year
1,2-Dichlorobenzene	0.85	1.79	---	---	1/year
1,3-Dichlorobenzene	0.34	0.48	---	---	1/year
1,4-Dichlorobenzene	0.16	0.31	---	---	1/year
Diethyl phthalate	0.89	2.23	---	---	1/year
Dimethyl phthalate	0.21	0.52	---	---	1/year
Di-n-butyl phthalate	0.30	0.63	---	---	1/year
2,4-Dinitrotoluene	1.24	3.13	---	---	1/year
2,6-Dinitrotoluene	2.80	7.04	---	---	1/year
Fluoranthene	0.27	0.75	---	---	1/year
Fluorene	0.24	0.65	---	---	1/year
Hexachlorobenzene (*2)	0.005	0.012	---	---	1/quarter
Hexachlorobutadiene (*2)	0.160	0.379	---	---	1/quarter
Hexachloroethane	0.23	0.59	---	---	1/year
Naphthalene	0.24	0.65	---	---	1/year
Nitrobenzene	0.30	0.75	---	---	1/year

PARAMETER(S)	MASS, LBS/DAY unless otherwise stated		CONCENTRATION, µG/L unless otherwise stated		MEASUREMENT FREQUENCY
	MONTHLY AVERAGE	DAILY MAXIMUM	MONTHLY AVERAGE	DAILY MAXIMUM	
Phenanthrene	0.24	0.65	---	---	1/year
Pyrene	0.27	0.74	---	---	1/year
1,2,4-Trichlorobenzene	0.75	1.54	---	---	1/year

(*1) The pH shall be within a range of 6.0 - 9.0 Standard Units at all times subject to the continuous monitoring pH range excursion provision in Part II, Paragraph H of the draft permit.

(*2) Water quality based effluent limitations.

Calculations and basis of permit limitations are found at Appendix A-1, B-2, and associated appendices. See below for site-specific considerations.

<u>Site-Specific Technology and Water Quality Consideration(s) for Outfall C01</u>

This outfall is proposed for use on an emergency basis only in the event that the diffuser is taken out of service or during the maintenance of the diffuser and will **not** *to be used on a permanent basis without receiving a permit modification to include additional requirements.*

Flow - this requirement has been established in accordance with LAC 33:IX.2707.I.1.b. and retained from the current LPDES permit effective on May 15, 2002. The continuous monitoring frequency has also been retained.

pH - this requirement has been established in accordance with LAC 33:IX.1113.C.1. and retained from the current LPDES permit effective on May 15, 2002. The continuous monitoring frequency has also been retained.

BOD_5 and TSS - monthly average and daily maximum limitations have been established in accordance with OCPSF Guidelines under 40 CFR 414, Subparts F, G, and H with a process wastewater flow of 1.317312 MGD. Additionally, allocations have been granted for sanitary wastewater and utility wastewaters based on best professional judgment. Sanitary allocations are applied to a flow of 0.01944 MGD

and based on a 30 mg/L monthly average concentration and 45 mg/L daily maximum concentration for BOD_5 and TSS. Utility wastewater allocations are applied to a flow of 1.21248 MGD and based on a 5 mg/L monthly average concentration and 10 mg/L daily maximum concentration for BOD_5 and a 10 mg/L monthly average concentration and 20 mg/L daily maximum concentration for TSS.

Sasol requested a monitoring frequency reduction for BOD_5 and TSS from 2/week to 1/month in accordance with the USEPA Memorandum "Interim Guidance for Performance-Based Reductions of NPDES Permit Monitoring Frequencies." This request has been partially granted. Although Sasol does qualify for the requested reduction for BOD_5, the Department has determined that 1/month sampling is not an adequate frequency for conventional and non-conventional parameters for major facilities. Therefore, the frequency for BOD_5 has been reduced from 2/week to 1/week. No reductions were granted for TSS due to an excursion reported in March 2007.

COD - monthly average and daily maximum limitations are based on a COD to BOD_5 ratio of 7:1 and are applied as best available technology (BAT). The basis of this requirement has been retained from the current LPDES permit effective on May 15, 2002. Sasol requested a monitoring frequency reduction for COD from 2/week to 1/month in accordance with the USEPA Memorandum "Interim Guidance for Performance-Based Reductions of NPDES Permit Monitoring Frequencies." This request has been partially granted. Although Sasol does qualify for the requested reduction for COD, the Department has determined that 1/month sampling is not an adequate frequency for conventional and non-conventional parameters for major facilities. Therefore, the frequency for COD has been reduced from 2/week to 1/week.

Ammonia (as N) - mass limitations were calculated using the BAT concentrations 2.27 mg/L monthly average and 4.88 mg/L daily maximum, as established in the January 20, 1986 NPDES Fact Sheet and the current outfall flow of 2.549232 MGD. The resulting limitations were 48 lbs/day monthly average and 104 lbs/day daily maximum. However, the Upper Calcasieu Estuary TMDL, issued in the Federal Register on June 13, 2002 requires retention of previous permit limitations for Ammonia (as N), therefore, the 41 lbs/day monthly average and 88 lbs/day daily maximum limitations have been retained from the current LPDES permit, effective on May 15, 2002. Per request from Sasol, the monitoring frequency has been reduced from 1/week to 1/ 2 months in accordance with the USEPA Memorandum "Interim Guidance for Performance-Based Reductions of NPDES Permit Monitoring Frequencies."

Total Copper, Total Mercury, Benzo(a)anthracene, and Benzo(a)pyrene - loadings have been established at this outfall per the Upper Calcasieu Estuary TMDL, issued in the Federal Register on June 13,

2002. A monitoring frequency of 1/quarter has been established based on the sampling requirements established in the TMDL.,

Total Cyanide - monthly average and daily maximum limitations have been established as water quality based effluent limitations using analytical data (0.093 lbs/day for Total Cyanide) provided in the addendum to the LPDES permit application dated December 19, 2006. These limitations were established using guidance procedures presented in the Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards, LDEQ, April 16, 2008. A monitoring frequency of 1/quarter has been established due to an EPA, Region VI recommendation for quarterly monitoring (at a minimum) on all water quality based effluent requirements.

Benzene, Carbon Tetrachloride, Chlorobenzene, Chloroethane, Chloroform, 1,1-Dichloroethane, 1,2-Dichloroethane, Ethylbenzene, Methyl Chloride, Methylene Chloride, Toluene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, and Vinyl Chloride - monthly average and daily maximum limitations have been established to ensure compliance with the OCPSF Guidelines under 40 CFR Part 414, Subparts F, G, H, and I. Per request from Sasol, the monitoring frequency has been reduced from 1/week to 1/ 2 months in accordance with the USEPA Memorandum "Interim Guidance for Performance-Based Reductions of NPDES Permit Monitoring Frequencies."

Hexachlorobenzene and Hexachlorobutadiene - monthly average and daily maximum limitations were calculated to ensure compliance the OCPSF Guidelines under 40 CFR Part 414, Subparts F, G, H, and I. Additionally, water quality based effluent limitations were established using guidance procedures presented in the Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards, LDEQ, April 16, 2008. The monitoring frequency has been increased from 1/year to 1/quarter due to an EPA, Region VI recommendation for quarterly monitoring (at a minimum) on all water quality based effluent limitations.

Acrylonitrile, 1,1-Dichloroethylene, 1,2-trans-Dichloroethylene, 1,2-Dichloropropane, 1,3-Dichloropropylyene, Tetrachloroethylene, Trichloroethylene, 2-Chlorophenol, 2,4-Dichlorophenol, 2,4-Dimethylphenol, 4,6-Dinitro-o-Cresol, 2,4-Dinitrophenol, 2-Nitrophenol, 4-Nitrophenol, Phenol, Acenaphthene, Acenaphthylene, Anthracene, 3,4-Benzofluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl)phthalate, Chrysene, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, Diethyl phthalate, Dimethyl phthalate, Di-n-butyl phthalate, 2,4-Dinitrotoluene, 2,6-Dinitrotoluene, Fluoranthene, Fluorene, Hexachloroethane, Naphthalene, Nitrobenzene, Phenanthrene, Pyrene, and 1,2,4-Trichlorobenzene - monthly average and daily maximum limitations have been established to ensure compliance with the OCPSF Guidelines under 40 CFR Part 414, Subparts F, G, H, and I. A monitoring

frequency of 1/year has been retained from the current LPDES permit effective on May 15, 2002 for all parameters. This frequency is appropriate since these pollutants are not expected to be on site.

2. Outfall(s) 002, 004, 008, 018, and 030 - Stormwater

***Outfall 002** - the intermittent discharge of post-first flush stormwater runoff (first inch of stormwater is diverted to a holding pond and then to treatment for discharge through Outfall 001) from the Ethoxylate Unit (ETO), Alcohol Unit (ALC), and Ethylene Unit (ETH) area(s).

***Outfall 004** - the intermittent discharge of low contamination potential stormwater runoff from the Ethylene Unit (ETH) and Steam Plant (STM), steam trap condensate, raw water, and firewater from winterization.

***Outfall 008** - the intermittent discharge of low contamination potential stormwater runoff from the paved areas for the secondary treatment system.

***Outfall 018** - the intermittent discharge of low contamination potential stormwater runoff from the Alcohol Unit (ALC) diked north tank farms.

***Outfall 030** - the intermittent discharge of post-first flush stormwater runoff (first inch of stormwater is diverted for treatment and discharge through Outfall 001) from the diked areas around T-802, the Linear Alkyl Benzene Unit (LAB), as well as stormwater stored in T-802.

Uncontaminated or low potential contaminated stormwater discharged through discrete outfall(s) not associated with process wastewater shall receive the following BPJ limitations in accordance with this Office's guidance on stormwater, letter dated 6/17/87, from J. Dale Givens (LDEQ) to Myron Knudson (EPA Region 6) and applicable water quality.

PARAMETER(S)	MASS, LBS/DAY unless otherwise stated		CONCENTRATION, µG/L unless otherwise stated		MEASUREMENT FREQUENCY
	MONTHLY AVERAGE	DAILY MAXIMUM	MONTHLY AVERAGE	DAILY MAXIMUM	
Flow, MGD	Report	Report	---	---	1/quarter
TOC	---	---	---	50 mg/L	1/quarter
Oil & Grease	---	---	---	15 mg/L	1/quarter
pH Standard Units	---	---	6.0 (min)	9.0 (max)	1/quarter
Total Copper	---	---	---	Report	1/quarter
Total Mercury	---	---	---	Report	1/quarter
Total Nickel	---	---	---	Report	1/quarter
Total Zinc	---	---	---	Report	1/quarter
1,2-Dichloroethane	---	---	---	Report	1/quarter
Phenol	---	---	---	Report	1/quarter
2-Methylnapthalene	---	---	---	Report	1/quarter
Anthracene	---	---	---	Report	1/quarter
Benzo(a)anthracene	---	---	---	Report	1/quarter
Benzo(a)pyrene	---	---	---	Report	1/quarter
Chrysene	---	---	---	Report	1/quarter
Dibenzo(a,h)anthracene	---	---	---	Report	1/quarter
Fluoranthene	---	---	---	Report	1/quarter
Pyrene	---	---	---	Report	1/quarter
Phenanthrene	---	---	---	Report	1/quarter

Site-Specific Technology and Water Quality Consideration(s) for Outfalls 002, 004, 008, 018, and 030

Flow - Established in accordance with LAC 33:IX.2707.I.1.b. and has been retained from the current LPDES permit, effective on May 15, 2002. The monitoring frequency has been changed from 1/event to 1/quarter to be consistent with the frequencies established in the Multi-Sector General Permit for Industrial Stormwater Discharges, LAR050000.

TOC and Oil & Grease - daily maximum limitations of 50 mg/L for TOC and 15 mg/L for Oil & Grease has been retained from the current LPDES permit, effective on May 15, 2002. The monitoring frequencies have been changed from 1/event to 1/quarter. These requirements are consistent with this Office's guidance on stormwater, letter dated 6/17/87, from J. Dale Givens (LDEQ) to Myron Knudson (EPA Region 6) and the requirements of the Multi-Sector General Permit for Industrial Stormwater Discharges, LAR050000.

pH - established in accordance with LAC 33:IX.1113.C.1. PH has been established at 6.0 to 9.0 s.u. and has been retained from the current LPDES permit, effective on May 15, 2002. The monitoring frequency has been changed from 1/event to 1/quarter to be consistent with the frequencies established in the Multi-Sector General Permit for Industrial Stormwater Discharges, LAR050000.

Total Copper, Total Mercury, Total Nickel, Total Zinc, Total Calcium, 1,2-Dichloroethane, Phenol, 2-Methylnapthalene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Chrysene, Dibenzo(a,h)anthracene, Fluoranthene, Pyrene, and Phenanthrene - these parameters were identified as pollutants of concern in the Calcasieu TMDL for Subsegment 030306, issued in the Federal Register on June 13, 2002. A monitoring frequency of 1/quarter has been established based on the sampling requirements established in the TMDL.

Other Requirements Applicable to All Stormwater

In accordance with LAC 33:IX.2707.I.3 and 4 [40 CFR 122.44(I)(3) and (4)], a Part II condition is proposed for applicability to all storm water discharges from the facility, either through permitted outfalls or through outfalls which are not listed in the permit or as sheet flow. The Part II condition requires a Storm Water Pollution Prevention Plan (SWP3) within six (6) months of the effective date of the final permit, along with other requirements. If the permittee maintains other plans that contain duplicative information, those plans could be incorporated by reference to the SWP3. Examples of these type plans include, but are not limited to: Spill Prevention Control and Countermeasures Plan (SPCC), Best Management Plan (BMP), Response Plans, etc. The conditions will be found in the draft permit. Including Best Management Practice (BMP)

controls in the form of a SWP3 is consistent with other LPDES and EPA permits regulating similar discharges of stormwater associated with industrial activity, as defined in LAC 33:IX.2522.B.14 [40 CFR 122.26(b)(14)].

C. WATER QUALITY-BASED EFFLUENT LIMITATIONS

Technology-based effluent limitations and/or specific analytical results from the permittee's application were screened against state water quality numerical standard based limits by following guidance procedures established in the Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards, LDEQ, April 16, 2008. Calculations, results, and documentation are given in Appendix B.

In accordance with LAC 33:IX.2707.D.1/40 CFR § 122.44(d)(1), the existing (or potential) discharge (s) was evaluated in accordance with the Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards, LDEQ, April 16, 2008, to determine whether pollutants would be discharged "at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard." Calculations, results, and documentation are given in Appendix B.

The following pollutants received water quality based effluent limits:

POLLUTANT(S) - OUTFALL 001
Total Copper
Total Mercury
Ammonia (as N)
Benzo(a)anthracene
Benzo(a)pyrene
Hexachlorobenzene

POLLUTANT(S) - OUTFALL B01
Total Copper
Total Mercury
Ammonia (as N)
Total Nickel

POLLUTANT(S) – OUTFALL B01
Total Cyanide
Benzo(a)anthracene
Benzo(a)pyrene
Carbon Tetrachloride
1,2-Dichloroethane
1,1-Dichloroethylene
Tetrachloroethylene
Hexachlorobenzene
Hexachlorobutadiene

POLLUTANT(S) – OUTFALL C01
Total Copper
Total Mercury
Ammonia (as N)
Total Cyanide
Benzo(a)anthracene
Benzo(a)pyrene
Hexachlorobenzene
Hexachlorobutadiene

Minimum quantification levels (MQL's) for state water quality numerical standards-based effluent limitations are set at the values listed in the Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards, LDEQ, April 16, 2008. They are also listed in Part II of the permit.

TMDL Waterbodies

Outfall(s) 001 and C01

The discharges from Outfalls 001 and C01 including process wastewater, process area stormwater, and miscellaneous utility wastewaters from the Normal Paraffin Unit (NPU), Ethoxylate Unit

(ETO), Alcohol Unit (ALC), Alumina Unit (ALU), Linear Alkyl Benzene Unit (LAB), Ethylene Unit (ETH), Steam Plant (STM), Georgia Gulf Lake Charles Vinyl Chloride Monomer (GCLC VCM) Plant, and Activated Sludge Unit (ASU); sanitary wastewater; groundwater; holding ponds/basins stormwater; zeolite regeneration wastewater; boiler blowdown; sulfide caustic; lime settler wastewater; caustic wash quench settler blowdown; benzene contaminated water and steam condensate; and alcohol quench wastewater are to Calcasieu River - Subsegment 030301. Subsegment 030301 was not listed on the 2006 Final Integrated Report list of impairments due to the Upper Calcasieu Estuary Toxics TMDL being issued June 13, 2002. This TMDL addressed Copper, Mercury, Benzo(a)anthracene, and Benzo(a)pyrene.

Copper, Mercury, Ammonia as N, Benzo(a)anthracene, and Benzo(a)pyrene - The TMDL on Toxics for the Calcasieu Estuary was finalized on June 13, 2002, addressing the presence of toxic substances, including Copper, Mercury, Ammonia (as N), Benzo(a)anthracene, and Benzo(a)pyrene in the watershed. The applicant's facility received the following limits in this at Outfalls 001 and C01:

POLLUTANT(S)	MONTHLY AVERAGE LIMIT (LBS/DAY)	DAILY MAX LIMIT (LBS/DAY)
Copper	---	2.44
Mercury	---	0.0168
Ammonia (as N)	41.0	88.0
Benzo(a)Anthracene	0.164	---
Benzo(a)Pyrene	0.164	---

Site-Specific TMDL Consideration(s) for Outfalls 001 and C01

Outfall 001 - None

Outfall C01 - This Office has determined that it is appropriate to establish the same TMDL limitations assigned to Outfall 001 since the discharges are to the same receiving stream.

Outfalls B01, 002, 004, 008, 018, and 030

The discharges from Outfall B01 includes process wastewater, process area stormwater, and miscellaneous utility wastewaters from the Normal Paraffin Unit (NPU), Ethoxylate Unit (ETO), Alcohol Unit (ALC), Alumina Unit (ALU), Linear Alkyl Benzene Unit (LAB), Ethylene Unit (ETH), Steam Plant (STM), Georgia Gulf Lake Charles Vinyl

Chloride Monomer (GCLC VCM) Plant, and Activated Sludge Unit (ASU); sanitary wastewater; groundwater; holding ponds/basins stormwater; zeolite regeneration wastewater; boiler blowdown; sulfide caustic; lime settler wastewater; caustic wash quench settler blowdown; benzene contaminated water and steam condensate; and alcohol quench wastewater and Outfalls 002, 004, 008, 018, and 030 which include stormwater discharges, steam trap condensate, raw water, and firewater from winterization are to Bayou Verdine at Subsegment 030306. Subsegment 030306 was not listed on the 2006 Final Integrated Report list of impairments due to the Upper Calcasieu Estuary Toxics TMDL being issued June 13, 2002. This TMDL addressed Total Copper, Total Mercury, Total Nickel, Total Zinc, Total Calcium, 1,2-Dichloroethane, Phenol, 2-Methylnapthalene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Chrysene, Dibenzo(a,h)anthracene, Fluoranthene, Pyrene, and Phenanthrene.

The TMDL for Toxics for the Calcasieu Estuary was finalized on June 13, 2002, addressing the presence of toxic substances, including Total Copper, Total Mercury, Total Nickel, Total Zinc, Total Calcium, 1,2-Dichloroethane, Phenol, 2-Methylnapthalene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Chrysene, Dibenzo(a,h)anthracene, Fluoranthene, Pyrene, and Phenanthrene in the watershed. However, TMDL loadings were not established for this discharge location.

The applicant's facility received the following limits/requirements based on this TMDL at Outfall B01:

POLLUTANT(S)	MONTHLY AVERAGE (LBS/DAY)	DAILY MAXIMUM (LBS/DAY)
Total Copper	---	2.44
Total Mercury	---	0.0168
Ammonia (as N)	41.0	88.0
Total Nickel	0.25	0.59
Total Zinc	---	Report
Total Calcium	---	Report
1,2-Dichloroethane	0.60	1.43
Phenol	0.16	0.29
2-Methylnapthalene	---	Report
Anthracene	0.24	0.65

POLLUTANT(S)	MONTHLY AVERAGE (LBS/DAY)	DAILY MAXIMUM (LBS/DAY)
Benzo(a)anthracene	0.164	---
Benzo(a)pyrene	0.164	---
Chrysene	0.24	0.65
Dibenzo(a,h)anthracene	---	Report
Fluoranthene	0.27	0.75
Pyrene	0.27	0.74
Phenanthrene	0.24	0.65

Site Specific TMDL Considerations for Outfall B01

Outfall B01 is an emergency outfall that will not likely discharge (according to Sasol, this outfall has not discharged in the past 5 years) and in the event there is a discharge it is not expected to occur for extended periods of time. LDEQ has determined that it is not appropriate to utilize Bayou Verdine's margin of safety for an outfall that discharges so infrequently. Instead, LDEQ found it more appropriate to use other means to ensure protection to the receiving waterbody. The following approach was used for Outfall B01:

- OCPSF Guideline technology-based effluent limitations (or a water quality based effluent limitation as a result of a water quality screen using the current water quality standards) have been established to address the following impairments: 1,2-Dichloroethane, Phenol, Anthracene, Chrysene, Fluoranthene, Pyrene, and Phenanthrene.

- A water quality based effluent limitation has been established as a result of a water quality screen using analytical data from the current application to address an impairment for the following pollutant that was not previously permitted and/or is not covered by OCPSF Guidelines: Total Nickel.

- The following monitor and report only requirements have been established to address impairments for pollutants that were not previously permitted and/or those that are not typically covered by the OCPSF Guidelines: Total Zinc, Total Calcium, 2-Methylnapthalene, and Dibenzo(a,h)anthracene.

- TMDL loadings were assigned to the primary discharge location (Outfall 001), Subsegment 030301 for Total Copper, Total Mercury, Benzo(a)anthracene, and Benzo(a)pyrene. This Office has determined that it is appropriate to retain the TMDL

loadings established for Subsegment 030301.

- This Office has determined that it is appropriate to retain the TMDL requirements for Ammonia (as N) established for Subsegment 030301. The Upper Calcasieu Estuary TMDL, issued in the Federal Register on June 13, 2002, requires retention of current limitations for Ammonia (as N), therefore 41.0 lbs/day monthly average and 88.0 lbs/day, daily maximum will be applied at this outfall based on best professional judgment.

The applicant's facility received the following reporting requirements in this TMDL at Outfalls 002, 004, 008, 018, and 030:

POLLUTANT(S)	DAILY MAXIMUM (ug/L)
Total Copper	Report
Total Mercury	Report
Total Nickel	Report
Total Zinc	Report
Total Calcium	Report
1,2-Dichloroethane	Report
Phenol	Report
2-Methylnapthalene	Report
Anthracene	Report
Benzo(a)anthracene	Report
Benzo(a)pyrene	Report
Chrysene	Report
Dibenzo(a,h)anthracene	Report
Fluoranthene	Report
Pyrene	Report
Phenanthrene	Report

Site-Specific TMDL Consideration(s) for Outfalls 002, 004, 008, 018, and 030

None

A reopener clause has been established in the permit to include more stringent limits based on potential changes to the approved TMDL.

Monitoring frequencies for water quality based limited parameters are established in accordance with the Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards, LDEQ, April 16, 2008.

D. Biomonitoring Requirements

It has been determined that there may be pollutants present in the effluent which may have the potential to cause toxic conditions in the receiving stream. The State of Louisiana has established a narrative criteria which states, "toxic substances shall not be present in quantities that alone or in combination will be toxic to plant or animal life." The Office of Environmental Services requires the use of the most recent EPA biomonitoring protocols.

Whole effluent biomonitoring is the most direct measure of potential toxicity which incorporates both the effects of synergism of effluent components and receiving stream water quality characteristics. Biomonitoring of the effluent is, therefore, required as a condition of this permit to assess potential toxicity. The biomonitoring procedures stipulated as a condition of this permit for Outfall(s) 001 are as follows:

TOXICITY TESTS	FREQUENCY
Chronic static renewal 7-day survival and growth test using Mysidopsis bahia [Method 1007.0]	1/quarter
Chronic static renewal 7-day larval survival and growth test using inland silverside minnow (Menidia beryllina) [Method 1006.0]	1/quarter

Toxicity tests shall be performed in accordance with protocols described in the latest revision of the "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms." The stipulated test species are appropriate to measure the toxicity of the effluent consistent with the requirements of the State water quality standards. The

biomonitoring frequency has been established to reflect the likelihood of ambient toxicity and to provide data representative of the toxic potential of the facility's discharge in accordance with regulations promulgated at LAC 33:IX.2715/40 CFR Part 122.48.

Results of all dilutions as well as the associated chemical monitoring of pH, temperature, hardness, dissolved oxygen, conductivity, and salinity shall be documented in a full report according to the test method publication mentioned in the previous paragraph. The permittee shall submit a copy of the first full report to the Office of Environmental Compliance. The full report and subsequent reports are to be retained for three (3) years following the provisions of Part III.C.3 of this permit. The permit requires the submission of certain toxicity testing information as an attachment to the Discharge Monitoring Report.

This permit may be reopened to require effluent limits, additional testing, and/or other appropriate actions to address toxicity if biomonitoring data show actual or potential ambient toxicity to be the result of the permittee's discharge to the receiving stream or water body. Modification or revocation of the permit is subject to the provisions of LAC 33:IX.3105/40 CFR 124.5. Accelerated or intensified toxicity testing may be required in accordance with Section 308 of the Clean Water Act.

Dilution Series

Outfalls 001 and C01
The permit requires five (5) dilutions in addition to the control (0% effluent) to be used in the toxicity tests. These additional effluent concentrations shall be 0.4%, 0.5%, 0.7%, 1.0%, and 1.3%. The low-flow effluent concentration (critical dilution) is defined as 1.0% effluent.

Outfall B01
The permit requires five (5) dilutions in addition to the control (0% effluent) to be used in the toxicity tests. These additional effluent concentrations shall be 21%, 27%, 37%, 49%, and 65%. The low-flow effluent concentration (critical dilution) is defined as 49% effluent.

X. Compliance History/DMR Review:

A. DMR Review - A DMR Review has been completed for Sasol North America, Inc., Lake Charles Chemical Complex covering the time frame of November 1, 2006 through December 9, 2008. The following excursion was reported during this time frame:

DATE	PARAMETER	OUTFALL	REPORTED VALUE		PERMIT LIMITS	
			MONTHLY AVERAGE	DAILY MAXIMUM	MONTHLY AVERAGE	DAILY MAXIMUM
3/31/07	TSS	001	587 lbs/day	1634 lbs/day	505 lbs/day	1581 lbs/day

B. Inspection - There were no areas of concern for the LPDES Compliance Inspection conducted on June 18, 2007.

C. Enforcement - an enforcement review was completed to identify any open enforcement actions at this facility. There were no open actions for water.

The following list of enforcement actions have been issued to this facility for other media:

1. Hazardous Waste Order - HEC010553, issued on May 3, 2002.

2. Air Order - AECN070099, issued May 22, 2008.

XI. "IT" Questions

The "IT" Questions along with the applicant's responses can be found in the Permit Application dated November 14, 2006, Section 4.

See EDMS Document ID 35474187, pages 77 and 78 of 419.
(http://edms.deq.louisiana.gov/app/doc/view.aspx?doc=35474187&child=yes)

XII. Endangered Species:

The receiving waterbody, Subsegment 030301 and 030306 of the Calcasieu River Basin is not listed in Section II.2 of the Implementation Strategy as requiring consultation with the U.S. Fish and Wildlife Service (FWS). This strategy was submitted with a letter dated November 17, 2008 from Rieck (FWS) to Nolan (LDEQ). Therefore, in accordance with the Memorandum of Understanding between the LDEQ and the FWS, no further informal (Section 7, Endangered Species Act) consultation is required. The effluent limitations established in the permit ensure protection of aquatic life and maintenance of the receiving water as aquatic habitat. Therefore, the issuance of the LPDES permit is not likely to have an adverse effect on

any endangered or candidate species or the critical habitat.

XIII. Historic Sites:

The discharge is from an existing facility location, which does not include an expansion on undisturbed soils. Therefore, there should be no potential effect to sites or properties on or eligible for listing on the National Register of Historic Places, and in accordance with the "Memorandum of Understanding for the Protection of Historic Properties in Louisiana Regarding LPDES Permits" no consultation with the Louisiana State Historic Preservation Officer is required.

XIV. Tentative Determination:

On the basis of preliminary staff review, the Department of Environmental Quality has made a tentative determination to permit for the discharge described in the application.

XV. Variances:

No requests for variances have been received by this Office.

XVI. Public Notices:

Upon publication of the public notice, a public comment period shall begin on the date of publication and last for at least 30 days thereafter. During this period, any interested persons may submit written comments on the draft permit and may request a public hearing to clarify issues involved in the permit decision at this Office's address on the first page of the fact sheet. A request for a public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing.

Public notice published in:

Local newspaper of general circulation

Office of Environmental Services Public Notice Mailing List